Engineering

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U. S. DEPARTMENT OF COMMERCE
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BUSINESS AND DEFENSE SERVICES ADMINISTRATION
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U. S. DEPARTMENT OF COMMERCE
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BIBLIOGRAPHY OF Technical Reports

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APPAREL

Case study data on productivity and factory performance: Seamless hosiery, prepared by Renee Smith. U. S. Bureau of Labor Statistics. Sep 1953. 111p drawings, diagrs, tables Available from U.S. Dept. of Labor, Bureau of Labor Statistics, Washington 25, D. C. PB 113099

Prepared for the Foreign Operations Administration, Productivity and Technical Assistance Division. 1. Hosiery - Manufacture 2. BLS R 44.

CHEMICALS AND ALLIED PRODUCTS

Drugs and Pharmaceuticals

Effect of metabolic inhibitors, Salmonella typhimurium, and Aerobacter aerogenes on citric acid content of mouse tissues, by Joe Berry and Kathryn H. Ehlers. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Oct 1953. 7p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50 Ph $1.50. PB 113324

The concentration of citric acid was determined in selected tissues of mice one hour after the intraperitoneal injection of sublethal doses of malonate, arsenite, and fluoroacetate and 15 hours after the injection of heat-killed cultures of Salmonella typhimurium and Aerobacter aerogenes. Increases were observed with all three of the inhibitors, the largest occurring with fluoroacetate and with S. typhimurium A. aerogenes produced no changes in the organs studied. Contract no. AF 18(600)-551. 11th report on the project entitled "Influence of polycythemia produced at high altitude on resistance to infection." Reports 1-8 were issued under Project no. 21-35-005. AAF SAM Proj no. 21-1401-0004, Report no. 3.

Effects of chloroquine on the speed of visual accomodation in man, by Randolph Clements, John W. Archer, Ruth Hays, Joyce K. Schoening, Paul L. Ewing, and George A. Emerson. U. S. Air Force. School of Aviation Medicine, Randolph Field, Tex. Nov 1953. 9p photos, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113485

Despite previously reported visual disturbances after chloroquine administration, acute experiments with amebacidal and malarial therapeutic doses and suppressive doses for a period of one year failed to cause significant changes in time of visual accomodation, as measured with the tachistoscope. AAF SAM Proj 21-1601-0005.

Thiocyanate space: Optimal diffusion and correlation with body weight, surface area and lean body mass, by David E. Bass, Charles R. Kleeman, Murray Quinn, Julie A. Klimas. U. S. Office of the Quartermaster General. Research and Development Division. Environmental Protection Branch. Mar 1953. 16p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113461

1. Thiocyanates - Physiological effects 2. U. S. Climatic Research Laboratory, Lawrence, Mass. 3. QMC EPS 204.

Agricultural Chemicals

Chemical investigation of fluorine compounds as fungicides, by G. C. Finger, F. H. Reed, J. E. Dunbar. Illinois. State Geological Survey. Division of Fluorine Chemistry. Nov 1952. 31p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.00. PB 111324

Approximately 35 fluorinated compounds belonging to the quinone, hydroquinone, phenol, aniline, and nitrobenzene types were synthesized and furnished

the fungicidal testing program. The method of synthesis and the properties of each compound are described briefly. Contract no. AF 33(038)-26990. AAF WADC TR 52-214.

Miscellaneous Chemicals

Crystal growth. Report no. 2 under Contract no. AF 19(122)-185 for the period Jun 1, 1951, to Sep 1, 1951, by C. E. Birchenall and Ling Yang. Carnegie Institute of Technology. Metals Research Laboratory. Oct 1951. 5p diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113428

1. Crystals, Sodium - Growth 2. Crystals, Sodium - Growth - Measuring equipment 3. Vacuum systems - Design.

Heats of adsorption of argon on a series of carbon blacks graphitized at successively higher temperatures, by R. A. Beebe, D. M. Young and H. Bienes. Amherst College. Dept. of Chemistry, Amherst, Mass. Jun 1953. 12p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113305

The calorimetric heats of adsorption have been measured for argon at -195°C on a series of carbon blacks graphitized at the successively higher temperatures, 1000°, 1500°, 2000° and 2700°C. Contract N8-onr-66902, Project no. NR-358-151. Technical report no. 3. Presented before the Division of Physical and Inorganic Chemistry at the 122nd meeting of the American Chemical Society in Atlantic City, N. J., Sep 1952.

Heterogeneity of surfaces. Immersion calorimetry and adsorption studies. Hydrophobic and hydrophilic surfaces and the sorption of water vapor by oxide coated metals, by J. J. Chessick, F. H. Healey, Y. Yu. Lehigh University. Surface Chemistry Laboratory, Bethlehem, Pa. May 1953. 56p drawing, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $7.75. PB 113448

Contract N8onr-74300, Project NRO 358-186. Technical report no. 5. Sec. I: "Thermistor calorimeter for heats of wetting" was preprinted in J. of Phys. Chem., 27th National Colloid Symposium, Jun 25-27, 1953, p. 43-46.
1. Calorimeters - Design 2. Water vapor - Adsorption 3. Metals - Adsorptive properties 4. Films, Metal oxide - Properties 5. Surfaces, Metallic - Adsorptive properties 6. Carbon black - Adsorption of water vapor.

Index of chemicals in German reports and documents. Part 1: Index to BIOS, CIOS and FIAT reports. Gt. Brit. Dept. of Scientific and Industrial Research. Technical Information and Documents Unit, London, England and Association of British Manufacturers. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Reel 1: A-Isotopes. 1952. 1432f. Microfilm $9.25, Enlargement Print $187.75. PB 113255

Reel 2: J-Z and dyestuffs. 1952. 1820f. Microfilm $9.25, Enlargement Print $239.00. PB 113256

1. Dyes and dyeing - Chemistry - Indexes - Germany.

Infrared and Raman spectra of the trimer and tetramer of phosphonitridic dichloride, by L. W. Daasch. U. S. Naval Research Laboratory. Feb 1954. 12p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113443

The infrared spectra of $(PNCl_2)_3$ and $(PNCl_2)_4$ are given for the range from 260 to 5000 wave numbers for solutions in carbon tetrachloride or carbon disulfide and for the solid state. Raman spectra are also given for solutions in carbon tetrachloride and for the liquid state. An assignment of fundamental frequencies by class is made for fourteen of the seventeen active fundamentals and certain frequencies are further designated as modes of vibration originating in the skeleton or PCl_2 groups. NRL R 4302.

Intermolecular potentials of helium and hydrogen (and force constants for some non polar molecules), by Edward A. Mason and William E. Rice. Wisconsin. University. Dept. of Chemistry. Jul 1953. 53p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $7.75. PB 113441

Contract N7onr-28511. WIS-ONR-3.
1. Molecular theory 2. Molecular interactions 3. Helium - Viscosity 4. Helium - Thermal properties 5. Hydrogen - Diffusion 6. Hydrogen - Viscosity 7. Helium-hydrogen mixtures - Thermal diffusion.

Microwave frequencies. Ohio State University Research Foundation, Columbus, Ohio. Under Contract no. AF 19(122)-13, Project 361. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 4 for the period Sep-Nov 1949, by Dudley Williams. Nov 1949. 22p diagrs, graphs, tables Microfilm $2.25, Photostat $4.00. PB 113415

A recording Stark-effect-modulation spectrograph has been developed and has been used to map the K-band absorption spectra of dichloro-

ethylene vapor, formaldehyde vapor, methanol vapor, dibromoethylene vapor, water vapor, nitrosyl chloride, formic acid vapor, and methyl amine. Strong absorption lines with Stark patterns have been observed for each of these gases. A Klystron stabilized by means of an ammonia line has been arranged for use as a frequency standard, and by means of associated circuits a set of frequency markers has been developed.

Progress report no. 5 for the period Dec 1949 and Jan and Feb 1950, by Dudley Williams. Mar 1950. 25p graphs, table Microfilm $2.25, Photostat $4.00. PB 113409

Includes Microwave spectrum of methylamine, by Donald Burkhard, and l-type doubling in OCS and HCN, by H. H. Nielsen.
1. Molecular theory 2. Gases, Paramagnetic - Absorption spectra 3. Spectra, Absorption - Analysis 4. Formic acid - Absorption spectra 5. Methylamine - Absorption spectra 6. Nitrosyl chloride - Absorption spectra.

Penn State bibliography on sprays. Pennsylvania State University. Dept. of Engineering Research, State College, Pa. Second edition. Dec 1953. 213p Available from Pennsylvania State University, Dept. of Engineering Research, State College, Pa. PB 113379

Technical Paper no. 108.
1. Sprays - Bibliography 2. PSC ER TP 108.

System calcium peroxide-calcium oxide-oxygen, by C. N. Satterfield and T. W. Stein. Massachusetts Institute of Technology. Dept. of Chemical Engineering. Sep 1953. 24p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113447

The peroxidation of lime to calcium peroxide was investigated experimentally as a possible avenue for producing hydrogen peroxide. Only traces of the peroxide could be produced through such peroxidation, indicating the approach less feasible than heretofore expected. Contract N5ori-07819, NR-092-008. Division of Industrial Cooperation project 6552. Report no. 41.

Über die verwendung von ionenaustauschern für die sorption und trennung von ketonen (On the utilization of ionic exchange for the adsorption and decomposition of ketones), by Eero Sjöström. Chalmers University of Technology, Gothenburg, Sweden. 1953. 46p photo, drawings, graphs, tables (Text in German) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113457

Adv. Kemi och Kemisk Teknologi 27.
1. Ions - Exchange - Sweden 2. Ketones - Adsorption - Sweden 3. Ketones - Decomposition - Sweden 4. Chalmers University of Technology, Gothenburg, Sweden. Transactions no. 136.

ELECTRICAL MACHINERY

Communication Equipment

Basic ionospheric research. Pennsylvania State College. Radio Propagation Laboratory, State College, Pa. Under AMC contract no. AF 19(122)-44. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Quarterly report no. 1, for period 1 Feb 1949 to 16 Jun 1949, by Arthur H. Waynick. Jun 1949. 59p photos, diagr, graphs Microfilm $2.75, Photostat $7.50. PB 113207

1. Ionosphere - Research.

Quarterly report no. 2, for the period 16 Jun 1949 to 8 Sep 1949, by Arthur H. Waynick. Sep 1949. 50p photos, diagr, graphs, tables Microfilm $2.50, Photostat $6.25. PB 113208

1. Ionosphere - Research.

Quarterly report no. 3, for period 3 Sep 1949 to 1 Dec 1949, by Arthur H. Waynick. Dec 1949. 58p photos, diagr, graphs Microfilm $2.75, Photostat $7.50. PB 113209

Includes reprints of articles by project personnel: Conference on ionospheric research (Reprinted from Journal of Geophysical Research, vol. 54, no. 3, Sep 1949, p. 281-294). - Two meter DX "Sporadic E" or "Duct"? by Charles R. Underhill (Reprinted from VHF news, vol. 3, no. 4, Oct 1949, p. 8-11).
1. Ionosphere - Research.

Quarterly report no. 4, for period 1 Dec 1949 to 24 Feb 1950, by Arthur H. Waynick. Feb 1950. 44p photos, diagrs, graphs Microfilm $2.50, Photostat $6.25. PB 113210

Includes Procedure for the solution of certain network problems, by John M. Kelso (Reprinted from Review of Scientific Instruments, vol. 20, no. 12, p. 959-960, Dec 1949).
1. Ionosphere - Research 2. Ionosphere - E-layer 3. Networks - Theory.

Quarterly report no. 5, for period 25 Feb 1950 to 24 May 1950, by Arthur H. Waynick. May 1950. 47p photos, diagr, graphs, tables Microfilm $2.50, Photostat $6.25. PB 113211

Includes Stable instrument amplifier, by Peter G. Sulzer (Reprinted from Electronics, Mar 1950, p. 116).
1. Ionosphere - Research 2. Polarization, Atmospheric - Theory 3. Amplifiers - Design.

Quarterly report no. 6, for period 24 May 1950 to 24 Aug 1950, by Arthur H. Waynick. Aug 1950. 62p photos, diagrs, graphs Microfilm $3.00, Photostat $8.75. PB 113212

Includes Approach to the approximate solution of the ionosphere absorption problem, by James Hacke, Jr. (Reprinted from Proc. I.R.E. vol. 38, no. 6, p. 683-684, Jun 1950). - Microphonism and the dynamically operated planar triode, by J. A. Wenzel and A. H. Waynick (Reprinted from Proc. I.R.E. vol. 38, no. 5, p. 524-532, May 1950). - Frequency and amplitude stability of the cathode-coupled oscillator, by Peter G. Sulzer (Reprinted from Proc. I.R.E., vol 38, no. 5, p. 540-542, May 1950). - Radio-wave propagation in a curved ionosphere, by John M. Kelso (Reprinted from Proc. I.R.E., vol. 38, no. 5, p. 533-539, May 1950).
1. Ionosphere - Research 2. Radio waves - Absorption 3. Radio waves - Propagation - Ionosphere 4. Oscillators, Cathode coupled.

Communication measurements at the Langley Air Force Base during November and December 1951, prepared by Walter W. Felton, Edward Fritz and George W. Grier, Jr. Franklin Institute, Philadelphia. Research and Development Laboratories. Nov 1952. 89p drawing, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 113173

Contract AF 18(600)-26.
1. Communication systems, Audio 2. Airports - Air traffic control 3. Information - Theory 4. AAF HRRL R31.

Dispersion effects at 150 kc/s for a particular E-layer model, by Norman Davids, including Magnetoionic calculations for a night-time E-layer model at 140, 150 and 160 kc/s, by R. L. Schrag. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Jan 1952. 65p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $8.75. PB 113221

This report discusses pulse transmission at 150 Kc through (a) the coupling region for a night time critical of 0.55 mc/s (b) the E-reflection region for various criticals. Effects found under (a) includes a large value of effective refraction index, little pulse distortion except for diffuseness at the edges, and rapid changes of state of polarization which are interpreted in geometric terms. Tables are given for refractive index, polarizations, and coupling factor for this region. Contract no. AF 19(122)-44 (Basic ionospheric research) Scientific report no. 31. PSC IRL SR 31.

Elliptical polarization and its application to the polarization of ionospherically reflected long radio waves, by J. M. Kelso. Pennsylvania State College. Radio Propagation Laboratory, State College, Pa. Jun 1950. 78p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.50, Photostat $10.00. PB 113213

AMC Contract no. AF 19(122)-44 (Basic ionospheric research) Technical report no. 11.
1. Radio waves - Polarization 2. Polarization, Atmospheric - Theory 3. Ionosphere - Research 4. Mathematical equations and solutions.

Experimental determination of the scale height, height of the bottom and true height of the maximum ionization of the E-layer under undisturbed conditions, by C. H. Grace, J. M. Kelso, J. W. Miller. Pennsylvania State College. Radio Propagation Laboratory, State College, Pa. Jun 1949. 46p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 113206

The parameters scale height, height of the bottom and true height of the maximum ionization are determined for normal conditions of the E layer and the data obtained under these conditions are presented and developed in detail. Data for abnormal or disturbed conditions are presented and discussed in relationship to data obtained under undisturbed conditions. AMC Contract no. AF 19(122)-44 (Basic ionospheric research) Technical report no. 3. PSC IRL TR 3.

Instrumentation for the measurement of change in phase height at 150 kc/sec and six months of initial data, by Robert E. Jones. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Aug 1952. 61p photos, diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $8.75. PB 113230

The equipment used is described in some detail and shown in block and schematic diagrams and photographs. It is essentially a frequency converter, radio frequency interferometer (at about one megacycle), and recorder. Contract no. AF 19(122)-44, Scientific report no. 41. PSC IRL SR 41.

Interpretation of vertical incidence equivalent height versus time recordings on 150 kc/s, by Rune Lindquist. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Jun 1952. 118p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. PB 113227

The results of virtual height versus time vertical incidence pulse recordings, obtained on 150 Kc/s, are presented and discussed. Contract no. AF 19(122)-44, Scientific report no. 38. PSC IRL SR38.

Investigation of the 150 kc/s propagation characteristics of the upper ionosphere, by R. L. Schrag. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Mar 1952. 44p

graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 113223

Contract no. AF 19(122)-44, Scientific report no. 33. 1. Ionosphere - Research 2. Ionosphere - Models 3. Refraction indexes 4. Radio waves - Propagation - Ionosphere 5. PSC IRL SR33.

Lower E and D region of the ionosphere as deduced from long wave measurements, by Robert J. Nertney. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Jun 1952. 81p graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 113228

Contract no. AF 19(122)-44, Scientific report no. 39. Continuation of Technical report 28. 1. Ionosphere - Research 2. Ionosphere - E-layer - Measurements 3. Ionosphere - D-layer - Measurements 4. Ionosphere - Models 5. Electrons - Collisions 6. PSC IRL SR 39.

Measurement of aperture transmission coefficients, by Chaang Huang and Ralph D. Kodis. Harvard University. Cruft Laboratory. Jun 1953. 37p photos, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113304

The transmission coefficients of circular, elliptical, and square apertures in a plane conducting screen are determined from measurements of the far-zone scattered field in the direction of incidence. The measurements were carried out at K-band frequencies using an image-plane technique. Experimental values of the transmission coefficient are compared with the results of a number of theoretical formulations. Contract N5ori-76, Task order no. 1, NR-078-011. HU CL TR 165.

Measurements of the vertical incidence ionospheric absorption at 150 kc/s. Second report, by A. H. Benner. Pennsylvania State College. Radio Propagation Laboratory, State College, Pa. Jun 1950. 49p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 113215

The results of semi-automatic measurements on the absorption of radio waves at vertical incidence on 150 Kc/s are presented. The data presented cover the period 1 July 1949 to 31 January 1950. The experimental material is examined for characteristics of specific significance. AMC Contract no. AF 19-(122)-44 (Basic ionospheric research) Technical report no. 13. Continues Technical report no. 6.

Method for obtaining the wave solutions of ionospherically reflected long radio waves including all variables and their height variations with preliminary applications, by R. J. Nertney. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Mar 1951. 87p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 113218

Theoretical and experimental results are compared with regard to absorption, height, and limiting polarization. AMC Contract no. AF 19(122)-44 (Basic ionospheric research) Technical report no. 20. Appendix A. Appleton-Hartree dispersion equation. - Appendix B. Approximate solutions to the uncoupled equations. PSC IRL TR 20.

Survey of the literature of the ionosphere pertaining to long waves, by the staff of the Ionosphere Research Laboratory. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa Jul 1951. 275p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $9.00, Photostat $35.00. PB 113219

This bibliography is comprized of abstracts and references to the literature of the ionosphere and a portion of the upper atmosphere. AMC Contract no. AF 19(122)-44 (Basic ionospheric research) Technical report no. 23. PSC IRL TR 23.

Tabulation of 150 kc/s polarization data obtained at vertical incidence including their interpretation from the single magneto-ionic component viewpoint, by H. J. Nearhoof. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Aug 1951. 420p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $9.00, Photostat $52.50. PB 113220

Theoretical methods are discussed which allow the determination of the electron density and the collisional frequency from the measurable polarization quantities as defined by the Appleton-Hartree equation. AMC Contract no. AF 19(122)-44 (Basic ionospheric research) Technical report no. 25. PSC IRL TR 25.

Übersicht über das funkgerät der englischen luftwaffe (Review of the wireless set of the English air force), by C. Hepoke. Deutsche Versuchsanstalt für Luftfahrt, E. V. Institut für Elektrophysik. May 1941. 79f photos, drawings, diagrs (Text in German) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Enlargement Print $11.50. PB 113399

1. Radio, Airborne - Gt. Brit.

Vertical incidence equivalent height versus time recordings on 150 kc/s, by D. Van Meter. Pennsylvania State College. Radio Propagation Laboratory, State College, Pa. Jun 1950. 109p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.50, Photostat $13.75. PB 113214

AMC Contract no. AF 19(122)-44 (Basic ionospheric research) Technical report no. 12. Appendix is Tabulation of data from Mar 4, 1949 to Jan 31, 1950.
1. Ionosphere - E-layer - Measurements 2. Ionosphere - Research.

Vertical incidence ionospheric absorption at low frequencies, by Arthur H. Benner. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Revised. Jan 1952. 90p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $11.25. PB 113217

The problem of the absorption of long electromagnetic waves in the ionosphere at vertical incidence is studied both theoretically and experimentally. An automatic absorption measuring equipment for use in the experimental work is described in detail. Contract AF 19(122)-44 (Basic ionospheric research) Technical report no. 18. PSC IRL TR 18.

Electronics

Collision frequency of electrons in the ionosphere, by Marcel Nicolet. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Feb 1952. 39p graph, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 113222

Contract no. AF 19(122)-44, Scientific report no. 32.
1. Ionosphere - Research 2. Electrons - Collisions
3. Particles, Charged - Collisions 4. PSC IRL SR 32.

Interpretation of experimental results dealing with the ambipolar diffusion of helium ions and electrons across an annular magnetic field in a microwave toroid, by Winston H. Bostick and Morton A. Levine. Tufts College. Dept. of Physics. Research Laboratory of Physical Electronics, Medford, Mass. Aug 1953. 35p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113331

Scientific report no. 8. Contract no. AF 19(122)-89.
1. Helium - Diffusion 2. Electrons - Diffusion
3. Magnetic fields 4. Toroids, Microwave.

Manufacturing cost determination. Vol. 5, by Mead Carney & Co., Inc. U. S. National Bureau of Standards. Jan 1954. 139p photos, fold diagr, graphs (part fold), tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $4.00. PB 111315

Project formerly known as Project Tinkertoy. For vols. I-IV see PB 111275-111278.
1. Electronic equipment - Design 2. Electronic equipment - Production - Cost.

Measurements performed with microwaves on the diffusion of He+ and electrons perpendicular to a magnetic field, by Winston H. Bostick and Morton A. Levine. Tufts College. Dept. of Physics. Research Laboratory of Physical Electronics, Medford, Mass. Jul 1953. 21p photo, diagr, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113330

Scientific report no. 7. Contract no. AF 19(122)-89.
1. Helium - Diffusion 2. Electrons - Diffusion
3. Magnetic fields 4. Toroids, Microwave.

Microwave spectrum of the water molecule, by Desmond Walter Posener. Massachusetts Institute of Technology. Research Laboratory of Electronics. May 1953. 162p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $6.50, Photostat $21.50. PB 113327

Contract DA 36-039-sc-100. Dept. of the Army project 3-99-10-022. Signal Corps project 8-102 B-O.
1. Water - Molecular structure 2. Water - Spectra
3. Water, Heavy - Spectra 4. MIT RLE TR 255
5. SIG Contract DA 36-039-sc-100.

Research in physical electronics. Quarterly progress report no. 4 under Contract no. AF 19(604)-524 for the period 15 Jun 1953 to 15 Sep 1953. Illinois. Engineering Experiment Station. Electrical Engineering Research Laboratory. Electron Tube Research Section. Oct 1953. 270p photos, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $9.25, Photostat $34.00. PB 113471

Contents: Part I. Introduction. - Part II. High speed oscillography and micro-time analysis, by H. M. Foerster. - Part III. Submillimeter wave generation by accelerated electrons, by P. D. Coleman. - Part IV. Gaseous electrons, by L. Goldstein.
1. Electronics - Research 2. Analyzers, Electron - Design 3. Electron beams - Electromagnetic effects 4. Kerr effect 5. Oscillography, High speed 6. Plasma, Electron - Oscillations 7. Generators, Pulse 8. Waves, Electromagnetic - Generation 9. Waves, Electromagnetic - Propagation.

Tunable waveguide cavity resonators for broadband operation of reflex klystrons, by W. W. Harman, J. H. Tillotson, R. C. Honey. Stanford University. Electronics Research Laboratory, Stanford, Calif. Nov 1948. 31p photo, drawings, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113494

Paper is a study of the design of broadband (2:1 tuning range) resonators for use with reflex klystrons of the external cavity type. The resonators considered are variations of a general type consisting of a section of waveguide with movable shorting

plungers at each end and the tube located at the center. Experimental and calculated turning curves, mode plots, and field plots for the various resonator types are presented. Comparison is made with the coaxial or concentric line type x resonator as to mode interference, resonator conductance, ease of manufacture, and application. Contract N6-onr-251, Consolidated task no. 7 (NR-075-036). SU ERL TR8.

Generators, Motors, Transmission

Design, construction and operation of a two megawatt long-wave pulse transmitter, by Robert L. Passow. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Jun 1952. 123p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $16.25. PB 113229

This work is concerned with the ionosphere sounding transmitting equipment developed for use in the program of upper atmosphere investigations being carried on at the Laboratory. The design problems and their solutions are discussed and the equipment developed is described in detail as to design, construction and testing procedures with the major emphasis placed on the 150 Kc/sec 2.0 megawatt pulsed sounding transmitter. Contract no. AF 19(122)-44 (Basic ionospheric research) Scientific report no. 40. PSC IRL SR 40.

Gold bonded transistor development. Final report under Contract AF 19(604)-814, by R. A. Langevin. Transistor Products, Inc., Boston, Mass. Jan 1954. 50p drawings, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113297

1. Transistors - Gold bonding 2. Transistors, Gold bonded - Packaging.

Miscellaneous

Augmented networks, by C. F. White. U. S. Naval Research Laboratory. Dec 1953. 28p diagrs, graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.75. PB 111290

Augmented networks are formed by the addition of similar L-sections connected across the previous series arm, rather than across the shunt arm as in cascaded networks. The general effect of the added components is increased output as compared with the performance of the original L-section network. Cutoff characteristics unusual for resistance-capacitance networks were obtained by cascading two augmented sections. NRL R 4261.

End-correction for coaxial line when driving an antenna over a ground screen, by Ronold King. Harvard University. Cruft Laboratory. Jun 1953. 26p diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113482

Theoretical and experimental results obtained by Hartig for the end-correction for a coaxial line when driving an antenna over a ground screen are corrected. Improved theoretical and experimental curves of the quantity $-C_T/bc_o$ are obtained, where $-C_T$ is the lumped negative capacitance required as end-correction, c_o is the capacitance per unit length of the coaxial line, and b is the inner radius of the outer conductor of the line. Contract N5ori-76, Task order no. 1, NR-078-011. HU CL TR 174.

Impedance of resonant transmission lines and waveguides, by W. W. Harman. Stanford University. Electronics Research Laboratory, Stanford, Calif. Nov 1948. 17p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113495

An attempt is made to clarify the relation between Q and the impedance of a resonant transmission line. Universal curves relating Q and resonant impedance of capacitively terminated transmission-line and waveguide sections are presented and discussed. Their use in cavity resonator design and as a method of measuring resonator shunt resistance is treated. Contract N6-onr-251, Consolidated task no. 7 (NR-075-036). SU ERL TR 9.

Magnetic circuit of telephone relays, a study of telephone relays, I, by Stig Ekelöf. Chalmers University of Technology, Gothenburg, Sweden. 1953. 34p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113455

Avd. Elektroteknik 34.
1. Relays, Telephone - Sweden 2. Chalmers University of Technology, Gothenburg, Sweden. Translations no. 134.

On the excitation of different space charge wave modes in travelling wave tubes, by O. E. H. Rydbeck. Chalmers University of Technology, Gothenburg, Sweden. 1953. 15p graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113452

Avd. Elektroteknik 32.
1. Tubes, Traveling wave - Theory - Sweden 2. Electrons - Interactions - Sweden 3. Chalmers University of Technology, Gothenburg, Sweden. Transactions no. 131. 4. Chalmers University of Technology, Gothenburg, Sweden Research Laboratory of Electronics. Report no. 27.

Rating program on hydrogen thyratrons. Final report (Job II 1930), by M. H. Zinn. U. S. Camp Evans Signal Laboratory, Belmar, N. J. Sep 1951.

15p diagr, graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113346

Proj 313A.
1. Vacuum tubes, Thyratron-hydrogen - Tests.

Wideband searching automatic frequency control circuit of new type, by Henry Wallman. Chalmers University of Technology, Gothenburg, Sweden. Apr 1953. 21p photos, diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113453

Avd. Elektroteknik 33.
1. Circuits, Automatic frequency control - Design - Sweden 2. Chalmers University of Technology, Gothenburg, Sweden. Transactions no. 132.

FOOD AND KINDRED PRODUCTS

Production of mould protease on a pilot-plant scale, by Margaret E. Maxwell. Australia. Commonwealth Scientific and Industrial Research Organization. Wool Textile Research Laboratories. 1950. 15p drawings, graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113473

Technical paper no. 1.
1. Mold bran - Production - Australia 2. Aspergillus oryzae - Australia.

FUELS AND LUBRICANTS

Evaluation of the soap-bubble method for burning velocity measurements using ethylene-oxygen-nitrogen and methane-oxygen-nitrogen mixtures, by Dorothy M. Simon and Edgar L. Wong. U. S. National Advisory Committee for Aeronautics. Feb 1954. 30p photos, drawings, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113259

A nonaqueous soap-bubble method was used to measure the burning velocities of some ethylene-oxygen-nitrogen and methane-oxygen-nitrogen mixtures. Burning velocity calculations were based on high-speed schlieren motion-picture records of the flame growth and a theoretical expansion ratio. Soap-bubble burning velocity measurements were compared with measurements by other methods. NACA TN 3106.

Liquefied petroleum gas for tractors, by George H. Larson. Kansas. Engineering Experiment Station, Manhattan, Kansas. Feb 1954. 41p photos, drawings, map, graphs, tables Available from Engineering Experiment Station, Kansas State College, Manhattan, Kansas. PB 113435

Kansas State College Bulletin, vol. 38, no. 3, Feb 1, 1954.
1. Fuels, Tractor 2. Butane-propane mixtures - Carburetion 3. Butane-propane mixtures - Uses 4. K EES B 71.

HIGHWAYS AND BRIDGES

Design of upper base courses for high-pressure tires. Report no. 1: Base course requirements as related to contact pressure. U. S. Waterways Experiment Station, Vicksburg, Miss. Dec 1953. 93p photos, drawings, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.50, Photostat $12.75. PB 113335

1. Pavements, Flexible - Design 2. Pavements, Flexible - Tests 3. Pavements - Traffic tests 4. Airports - Pavements - Design 5. Airports - Pavements - Tests 6. Tires, Aircraft - Effect on pavements 7. WES TM 3-373.

Engineering applications of soil surveying and mapping. Presented at the 32d annual meeting, Jan 13-16, 1953. Highway Research Board. 1953. 77p photos, diagrs, maps, tables Available from Highway Research Board, 2101 Constitution Ave., N. W., Washington 25, D. C. $1.05. PB 113310

Contents: Introduction, by Frank R. Olmstead. - Geologic Survey mapping in the United States. - Development and application of soil engineering in Michigan, by Olaf L. Stokstad. - Application of soil survey data to highway engineering in Kansas, by Delbert L. Lacey. - Use of soil survey data in design of highways, by L. D.Hicks. - Airphoto interpretation of coastal plain areas, by William W. Holman and H. C. Nikola. - Use of soil survey data by the small highway organization, by D. J. Olinger. - Contents of other Committee bulletins.
1. Maps, Soil 2. Soils - Surveys 3. Roads - Construction 4. HRB Bul 83.

Heat and blast effects on tar and tar-rubber pavements, Presque Isle Air Force Base, Maine. U. S. Waterways Experiment Station, Vicksburg, Miss. Jan 1954. 54p photos, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $7.75. PB 113336

1. Airports - Pavements - Tests 2. Airports - Pavements - Blast effects 3. Airports - Pavements - Heat effects 4. Pavements, Flexible - Tests 5. WES TM 3-377.

Highway engineering soil surveys, by W. H. Zimpfer. Florida. Engineering and Industrial Experiment Station, Gainesville, Fla. Jan 1954. 19p photos, maps, diagrs, table Available from Florida

Engineering and Industrial Experiment Station, University of Florida, Gainesville, Fla. PB 113338

Engineering progress at the University of Florida, vol. III, no. 1.
1. Soils - Surveys 2. Roads - Construction 3. F EES B63.

Parking as a factor in business: Preface, foreword, review of major findings, table of contents. Highway Research Board. 1953. 25p graphs Available from Highway Research Board, 2101 Constitution Ave., N. W., Washington 25, D. C. $.75. PB 113265

For part 1 see PB 112217.
1. Automobiles - Parking 2. HRB SR11 Preface.

INSTRUMENTS

Airborne coronagraph for rocket installation. Progress report no. 4, Jan 1, 1949 to Apr 30, 1949, under Contract no. W19-122-ac-9, submitted by W. B. Pietenpol. Colorado. University. Dept. of Physics. Physics Instrument and Research Laboratory, Boulder, Colo. Apr 1949. 198p photos, drawings, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $7.25, Photostat $25.25. PB 113282

1. Rockets, Upper air - Equipment 2. Rockets, Upper air - Control systems 3. Coronagraphs - Design 4. Servomechanisms - Design.

Analysis of scintillation spectrometer observations of the penetration of Cs^{137} gamma radiation through water, by L. A. Beach, R. B. Theus, W. R. Faust. U. S. Naval Research Laboratory. Dec 1953. 9p graphs Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $.25. PB 111291

Spectral modifications of Cs^{137} gamma radiations produced by penetration and diffusion through water have been observed. A single crystal of NaI(Tl) was used to observe the pulse height distributions, produced by radiation from both plane parallel and point isotropic sources. Inversion of the pulse height distribution was carried out by use of an analogue computer to obtain the spectral distribution of radiation. NRL R 4277.

Apparatus for research on the discrimination of velocity, by Robert H. Brown and Alan W. Bladwin. U. S. Naval Research Laboratory. Dec 1953. 7p diagrs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.25. PB 111305

The equipment is such that the observer in a dark room views the center of a circular black screen surrounded by a dimly illuminated circular area. He sees the target, a moving spot of white light, appear in the center of this configuration and reports its direction of movement. A rotating disc shutter provides for an exposure time which may be varied between one millisecond and five seconds. Neutral tint filters and wedges control the brightness of the spot. Its direction and speed of movement are determined by a mirror in the light beam. The system is calibrated photometrically for brightness and photographically for the duration and speed of the image. NRL R 4283.

Constant level balloon. New York University. College of Engineering. Research Division. Under Contract no. W28-099-ac-241. Project no. 93. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 93.11, covering period from Apr 1, 1948 to Apr 30, 1948, by Charles S. Schneider. May 1948. 8p Microfilm $1.50, Photostat $1.50. PB 113354

Progress report no. 93.12, covering period from May 1, 1948 to May 31, 1948, by Charles S. Schneider. Jun 1948. 13p maps, graphs Microfilm $2.00, Photostat $2.75. PB 113355

Progress report no. 93.17 covering period from Oct 1, 1948 to Oct 31, 1948, by James R. Smith. Nov 1948. 16p drawings, graphs Microfilm $2.00, Photostat $2.75. PB 113358

Progress report no. 93.16 covering period from Sep 1, 1948 to Sep 30, 1948, by James R. Smith. Oct 1948. 13p photo, drawings, graphs Microfilm $2.00, Photostat $2.75. PB 113357

Progress report no. 93.17 covering period from Oct 1, 1948 to Oct 31, 1948, by James R. Smith. 16p drawings, graphs Microfilm $2.00, Photostat $2.75. PB 113358

Progress report no. 93.19 covering period from Dec 1, 1948 to Dec 31, 1948, by James R. Smith. Jan 1949. 16p drawings, diagr, graph, map Microfilm $2.00, Photostat $2.75. PB 113359

Progress report no. 93.23 covering period from Jun 15, 1949 to Sep 15, 1949, by James R. Smith. Oct 1949. 3p Microfilm $1.50, Photostat $1.50. PB 113360

Constant level balloon. Technical report no. 1, covering period Nov 1, 1946 to Jan 1, 1948, under Contract no. W28-099-ac-241, by Charles B. Moore, James R. Smith, and Seymour Goldstein. New York University. College of Engineering. Research Division. Apr 1948. 119p photos, graphs, drawings, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $15.25. PB 113362

Project no. 93.
1. Balloons, Meteorological - Control systems
2. Balloons, Meteorological - Equipment

3. Balloons, Meteorological - Materials
4. Balloons, Meteorological - Design.

Constant level balloons. New York University. College of Engineering. Research Division. Contract no. W28-099-ac-241. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Section I: General, by James R. Smith and William D. Murray. Nov 1949. 75p photos, drawings, diagrs, graphs, tables Microfilm $3.75, Photostat $10.25. PB 113349

Technical report no. 93.02.
1. Balloons, Meteorological - Materials
2. Balloons, Meteorological - Transmitters
3. Equations of motion 4. Instruments, Meteorological.

Section II: Operations, by Charles B. Moore and James R. Smith. Jan 1949. 104p photos, drawings, diagrs, graphs, tables Microfilm $4.75, Photostat $14.00. PB 113350

Technical report no. 93.02. Appendix I. Equipment list and flight forms. - Appendix II. Pressure and temperature in the N.A.C.A. standard atmosphere, by Irwin Brill.
1. Balloons, Meteorological - Operation
2. Balloons, Meteorological - Equipment
3. Instruments, Meteorological - Design.

Section III: Summary of flights, by James R. Smith. Jul 1949. 68p photos, drawings, maps, graphs Microfilm $3.25, Photostat $9.00. PB 113361

Technical report no. 93.02.
1. Balloons, Meteorological - Flight tests
2. Balloons, Meteorological - Equipment.

Deep-sea instrument station, by Willard N. Bascom. California. University. Scripps Institution of Oceanography. Jun 1953. 14p photos, drawing, diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113296

A method of establishing instrument stations in the deep ocean basins is described which is relatively inexpensive and simple to install. By using a large underwater-floating buoy moored by a low-drag line to a heavy anchor resting on a seamount, it is possible to establish a semi-rigid point on which an instrument can be placed. The instrument station on the underwater buoy (preferably floating in the isothermal surface water) is connected to a small raft, on which the recording instruments are mounted, by a slack cable. The sensing mechanism may be lowered and retrieved on its own electrical cable by a man on the raft. Contract Nonr-233(04), Project NR-083-068. UC SIO 53-38.

Development of an Albrecht type meter for the measurement of heat flux in the soil, by Bonard E. Morse. Texas. University. Electrical Engineering Research Laboratory. May 1952. 46p drawings, diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113373

This work describes the construction, calibration and preliminary operation of a meter that is capable of measuring the undisturbed heat flux through the upper layers of the soil. Contract AF 19(604)-183. Scientific report no. 4. Adapted from a thesis.

Fluorite spectrograph of high aperture, by C. J. Silvernail. California. University. Institute of Geophysics. Jul 1952. 12p diagr, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113240

The spectrograph has been designed for the study of the afterglows and other chemiluminesces of nitrogen, oxygen and gaseous mixtures. Specifications are given for an instrument. Scientific report no. 1 under Contract no. AF 19(122)-453.

High-accuracy photoelectric guider for solar telescopes, by Fred E. Fowler and Donald S. Johnson. Harvard University. High Altitude Observatory, Boulder, Colo. May 1950. 29p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113375

The system consists of two electronic servomechanisms; one guides the telescope in hour angle and the other guides in declination. This report is a brief summary of the theory of the system as a whole and a discussion of the operation and construction of the individual units of which it is composed. Diagrams and pictures of these units are included. Special report no. 27 under Contract W19-122ac-17.

Method of test checking an electronic digital computer, by Gerald Cooper. Massachusetts Institute of Technology. Servomechanisms Laboratory. Mar 1950. 137p diagrs (part fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.75, Photostat $17.75. PB 113341

The computer is systematically subdivided into small sections. A study is made to determine the paths (channel segments) in these sections along which information is routed, as well as the sources, destinations, and methods of transmission of the information. Project Whirlwind. Contract N5ori-60, Project NR-048-097. Project DIC 6345. Thesis report. Appendix I is "A short guide to coding, using the Whirlwind I code of October 1949". MIT SL R177

Micrometeorology of the surface layer of the atmosphere. Johns Hopkins University. Laboratory of Climatology, Seabrook, N. J. Under Contract W28-099-ac-378. Order separate parts described below from Library of Congress, Publication

Board Project, Washington 25, D. C., giving PB number of each part ordered.

Interim report no. 4, Oct 1, 1948 to Dec 31, 1948, by C. W. Thornthwaite. Dec 1948. 53p photos, drawing, graphs, tables Microfilm $3.00, Photostat $7.75. PB 113274

1. Micrometeorology 2. Evapotranspiration 3. Evapotranspirometers - Design 4. Atmosphere - Temperature - Measurement 5. Instruments, Meteorological - Design.

Interim report no. 14, Apr 1, 1951 to Jun 30, 1951, by Maurice H. Halstead, John R. Mather, A. McFarland, Donald J. Portman. Jun 1951. 121p photos, drawing, diagrs, graphs, tables Microfilm $5.25, Photostat $16.50. PB 113278

1. Micrometeorology 2. Winds - Velocity - Measurement 3. Indicators, Dew-point - Design 4. Hygrometers - Design 5. Radiometers - Design 6. Evapotranspiration 7. Soil - Moisture - Measurements 8. Solar radiation - Measurements 9. Soil - Temperature - Measurements 10. Precipitation - Measurements.

On the possibility of using reflecting glass surfaces as polarizers in birefringent monochromators, by Yngve Ohman. Harvard University. High Altitude Observatory, Boulder, Colo. Aug 1949. 17p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113194

Contract W19-122-ac-17, Special report.
1. Detectors, Flare 2. Polarizers - Uses 3. Polarizers, Scope 4. Glass - Surface reflection 5. Monochromators - Design 6. Solar observatories - Equipment.

Pertinent factors in the design of a filter for the 16-inch coronagraph, by John W. Evans. Harvard University. Harvard College Observatory, Cambridge, Mass. Nov 1950. 9p graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113369

Special report no. 33 under AMC Contract W19-122-ac-17 for the establishment of a solar observatory at Sacramento Peak, New Mexico.
1. Coronagraphs - Filters - Design 2. Filters, Birefringent - Design 3. HU HCO SR 33.

Progress report. Colorado. University. Dept. of Physics. Upper Air Laboratory, Boulder, Colo. Under Contract no. W19-122-ac-9. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

No. 10, covering period 1 Aug-31 Oct 1950, submitted by W. B. Pietenpol. Oct 1950. 73p photos, drawings (1 fold), diagrs Microfilm $3.75, Photostat $10.25. PB 113279

Contains account of firing of uniaxial pointing control.
1. Rockets, Upper air - Equipment 2. Rockets, Upper air - Control systems 3. Cameras, Solar - Design 4. Uniaxial pointing control.

No. 11, covering the period 1 Nov 1950 to 31 Jan 1951, submitted by W. B. Pietenpol. Jan 1951. 24p drawings Microfilm $2.25, Photostat $4.00. PB 113280

1. Rockets, Upper air - Equipment 2. Rockets, Upper air - Control systems.

No. 13, covering the period 1 May 1951 to 31 July 1951, submitted by W. B. Pietenpol. Jul 1951. 18p Microfilm $2.00, Photostat $2.75. PB 113281

1. Rockets, Upper air - Equipment 2. Rockets, Upper air - Control systems.

Quarterly progress report. California Institute of Technology. Seismological Laboratory, Pasadena, Calif. Under Contract no. W28-099-ac-426. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

No. 1, by B. Gutenberg. Nov 1948. 2p Microfilm $1.50, Photostat $1.50. PB 113418

1. Seismology - Research.

No. 2, by Hugo Benioff. Feb 1949. 2p. Microfilm $1.50, Photostat $1.50. PB 113419

1. Seismology - Research.

No. 3, by B. Gutenberg. May 1949. 3p. Microfilm $1.50, Photostat $1.50. PB 113420

1. Seismology - Research 2. Seismometers - Design.

No. 4, by B. Gutenberg. Aug 1949. 5p photos Microfilm $1.50, Photostat $1.50. PB 113416

1. Microseisms 2. Seismometers - Design 3. Seismology - Research.

No. 5, by B. Gutenberg. Nov 1949. 5p photos Microfilm $1.50, Photostat $1.50. PB 113417

1. Instruments, Seismological 2. Seismometers - Design 3. Seismology - Research.

Rate of handling information: Key pressing responses to light patterns, by Edmund T. Klemmer and Paul F. Muller, Jr. U. S. Air Force. Air Research and Development Command. Human Factors Operations Research Laboratories, Bolling Air Force Base, Washington, D. C. Mar 1953. 14p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113179

1. Reaction time - Measurement 2. Lights, Flashing - Use in psychomotor tests 3. Psychomotor tests - Apparatus 4. Display control system 5. Reaction (Psychology) - Testing equipment 6. Keying systems - Use in psychomotor tests 7. AAF HFORL MR 34.

Report of progress no. 12, 1 Feb 1951 to 1 May 1951 under Contract W19-122-ac-17 for the establishment of a solar observatory at Sacramento Peak, New Mexico, by Herbert E. Chase. Harvard University. Harvard College Observatory, Cambridge, Mass. Aug 1951. 30p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113370

1. Coronagraphs - Design 2. Detectors, Solar flare - Design 3. Solar observatories - Equipment.

Trouble location in a large-scale electronic digital computer, by George C. Sumner. Massachusetts Institute of Technology. Servomechanisms Laboratory. Apr 1949. 71p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $10.25. PB 113339

The first part of this paper is a general discussion of common trouble-location techniques and the requirements of the computer trouble-location system. The second part shows how automatic signal tracing may be applied to flip-flop registers. Project Whirlwind. Contract N5ori 60, Project NR-720-003. Project DIC 6345. Thesis report. MIT SL R 162.

Trouble-location scheme for a digital electronic computer, by George G. Hoberg and Edwin I. Blumenthal. Massachusetts Institute of Technology. Servomechanisms Laboratory. Apr 1949. 121p diagrs (part fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.25, Photostat $16.50. PB 113340

A discussion of the general aspects of the method and its limitations is followed by the functional design of a system for automatic utilization of test problems in the Multiplier. An optimum test-problem sequence is then derived after a detailed study of the performance of Multiplier electronic circuits when various possible faults exist. Project Whirlwind. Contract N5ori 60, Project NR-720-003. Project DIC 6345. Thesis report. MIT SL R 163.

Survey of automatic digital computers, by N. M. Blachman. U. S. Office of Naval Research. 1953. 115p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. $2.00. PB 111293

1. Computers, Digital.

LUMBER AND WOOD PRODUCTS

Industrial raw materials of plant origin. V: A survey of the bamboos, by H. N. Sineath, P. M. Daugherty, R. N. Hutton, T. A. Wastler. Georgia Institute of Technology. State Engineering Experiment Station, Atlanta, Ga. Dec 1953. 236p graphs, tables Available from Engineering Experiment Station, Georgia Institute of Technology, Atlanta, Ga. PB 113487

The survey attempts to evaluate bamboo as a possible chemurgic crop and to acquaint those interested in its development with the information available concerning its uses and products. Tables and an extensive bibliography are included. G EES B 18.

Strength properties of plywood. Part I: Comparison of 3-ply woods of a standard thickness, by W. T. Curry. Gt. Brit. Dept. of Scientific and Industrial Research. Forest Products Research Laboratory, Aylesbury, England. Sep 1953. 18p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35. PB 113283

S. O. code no. 47-68-29.
1. Plywood - Strength - Gt. Brit. 2. DSIR FPR 29.

MACHINERY

Case study data on productivity and factory performance: Cold formed machine bolts and hexagon nuts, by Seymour Rand. U. S. Bureau of Labor Statistics. Oct 1953. 76p photos, graphs, tables Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 113450

1. Bolts - Manufacture 2. Nuts - Manufacture 3. BLS 47.

Reheating refractories of interest to Australian gas suppliers, with a note on temperature conditions in a vertical retort, by J. Coutts and W. O. Williamson. Australia. Commonwealth Scientific and Industrial Research Organization. Division of Industrial Chemistry. 1951. 21p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113475

Technical paper no. 1.
1. Refractories - Tests - Australia.

Strength of auto-nailer assembled skids of green and dry lumber, by E. George Stern. Virginia Polytechnic Institute. Wood Research Laboratory, Blacksburg, Va. Dec 1953. 24p photos, graphs, tables Available from Wood Research Laboratory, Virginia

Polytechnic Institute, Blacksburg, Va.
PB 113347

Bulletin no. 12.
1. Nailing - Machines 2. Skids - Tests 3. Auto - Nailer (Trade name).

MEDICAL RESEARCH AND PRACTICE

Absorption from nasal mucous membrane: Further studies on systemic medication with hyoscine, by Reed W. Hyde, Juergen Tonndorf, and Herman I. Chinn. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Oct 1953. 5p graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113317

Using the decrease in salivary output as a criterion of systemic absorption, further studies are reported on intranasal hyoscine. Addition of hyaluronidase has no effect. Differences in rate and degree of absorption from different areas of the nose are evaluated and discussed. Sublingual administration is inferior to the intranasal route. AAF SAM Proj 21-1208-0010, Report no. 4.

Absorption from nasal mucous membrane: Systemic effects of atropine following intranasal medication, by Reed W. Hyde, Juergen Tonndorf, and Herman I. Chinn. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Nov 1953. 6p graph Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113318

Intranasal medication with atropine is compared to other routes of administration, using the antisialogogic effect as the criterion. The intranasal route is intermediate in effectiveness between the sublingual and the subcutaneous. An explanation is offered for the observed differences between intranasal hyoscine and intranasal atropine, and possible uses of this route for obtaining systemic effects are discussed. AAF SAM Proj 21-1208-0010, Report no. 5.

Accuracy of measurement of gaseous nitrogen elimination using the closed circuit-nitrogen meter method at altitudes of 5,000 and 14,200 feet, by Nils P. V. Lundgren, Elizabeth H. Roorbach, and Walter M. Boothby. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Nov 1953. 10p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113260

The rate and volume of gaseous pulmonary and tissue nitrogen elimination during oxygen breathing was determined in four subjects at 5,000 and 14,200 feet. A closed circuit-nitrogen meter method was utilized. Nitrogen elimination in each subject was the same at each altitude when expressed BTPD, but was proportional to the barometric pressure when expressed STPD. The confirmation of the gas laws within the limits of experimental error indicated that the method used for determining the rate and amount of gaseous nitrogen elimination was reliable and accurate. Contract No. AF 33(038)-13244. AAF SAM Proj 21-1201-0007, Report no. 1.

Attempt to recover pandemic-type influenza virus, by Harold V. Ellingson. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Dec 1953. 12p photos Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113319

Evidence of viable influenza virus was sought by egg inoculation, inoculation of ferrets, and hemagglutination. No evidence of viable virus was found. Evidence of antibodies against presently known influenza viruses was sought, but not found, in fluids from pleural spaces and heart. AAF SAM Proj 21-1401-0007.

Development of an automatic resuscitator, by Henry Seeler. U. S. Air Force. Air Research and Development Center. Aero-Medical Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Feb 1953. 25p photos, drawings, diagr, graph, table Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $1.00. PB 111323

A unit has been designed which can be operated on air, oxygen or any mixture of breathing gas. The resuscitator is of the pneumatic balance type and is compensated for the effect of altitude on the cycling rate. AAF WADC TR 53-33.

Effect of an impermeable vapor barrier on electrolyte and nitrogen concentrations in sweat, by Charles R. Kleeman, David E. Bass, Murray Quinn. U. S. Office of the Quartermaster General. Research and Development Division. Environmental Protection Branch. Mar 1953. 22p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113459

1. Sweat - Collection methods 2. Sweat - Nitrogen content 3. Sweat - Potassium content 4. Sweat - Analysis 5. U. S. Climatic Research Laboratory, Lawrence, Mass. 6. QMC EPS 202.

Effect of simulated altitude on certain insects, by Ardzroony Packchanian. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Sep 1953. 19p photos, drawings, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113269

A new apparatus for studying the effects of low temperatures and atmospheric pressure on insects has been described. Contract no. AF 41(607)-43. AAF SAM Proj 21-1401-0008, Report no. 2.

Energy cost of carrying three load distributions on a treadmill, by Farrington Daniels, Jr., Jan H. Vanderbie, C. Lawrence Bommarito. U. S. Office of the Quartermaster General. Research and Development Division. Environmental Protection Branch. Mar 1953. 29p drawing, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113460

1. Personnel, Military - Loads 2. U. S. Climatic Research Laboratory, Lawrence, Mass. 3. QMC EPS 203.

Further study of survival rations with adequate water intake, by Murray Quinn, Charles R. Kleeman, David C. Bass, Austin Henschel. U. S. Office of the Quatermaster General. Research and Development Division. Environmental Protection Branch. Mar 1953. 19p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113462

1. Food rations, Survival 2. U. S. Climatic Research Laboratory, Lawrence, Mass. 3. QMC EPS 205.

Measurement of the temporary effect of noise upon hearing, by John W. Black, Chester J. Atkinson, Vernon Bragg, Scott N. Morrill, and Gilbert C. Tolhurst. U. S. Naval School of Aviation Medicine, Naval Air Station, Pensacola, Fla. and Ohio State University Research Foundation, Columbus, Ohio. Nov 1953. 35p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113307

A pulse-type test of hearing was devised for measuring the temporary hearing loss occasioned by the exposure of personnel to high-level noise. Pulses of white noise and 500-cycle tone were recorded on magnetic tape in 2-db decremental steps, and reproduced in a 64-sec. testing interval. (1) The tests were sensitive to the temporary hearing loss incurred through the exposure of ears to noise. (2) The two types of pulses apparently appraised different aspects of the hearing function. (3) The test had to be administered through equivalent forms five times for indoctrination. (4) The test correlated, $r = .68 - .78$, with word reception. NMRI Proj NM 001064.01.18.

Mechanism of altitude adaptation: The combined effects of hypoxia, adrenalectomy, and thymectomy in parabiotic rats, by Bernhard Hoelscher. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Oct 1953. 8p drawing, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113316

The effects of hypoxia, adrenalectomy, and thymectomy were studied using three combinations of intact, adrenalectomized, and thymectomized partners of parabiotic pairs. Hemoglobin, hematocrit, and red blood cell count values were increased in both partners when only one partner was exposed to hypoxia. Regarding the thymus no conclusive information has been obtained as yet from these experiments. AAF SAM Proj 21-1201-0001, Report no. 5.

Metabolic comparison of protein and protein-free diets during restricted calorie and water intake, by Murray Quinn, Charles R. Kleeman, David E. Bass, Austin Henschel. U. S. Office of the Quartermaster General. Research and Development Division. Environmental Protection Branch. Mar 1953. 42p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113458

1. Food rations, Survival 2. Metabolism - Research 3. Metabolism - Effects of diet 4. Diet - Effect on nitrogen retention 5. Diet - Protein reenforcement 6. U. S. Climatic Research Laboratory, Lawrence, Mass. 7. QMC EPS 201.

Otitis externa. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Under Contract no. AF 33(038)-12465. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

X: Bacteriological studies of external ear infections among armed forces personnel, by Elizabeth Yawn, Minnie Schreiber, Albert V. Hardy, and Roland B. Mitchell. Nov 1953. 6p table Microfilm $1.50, Photostat $1.50. PB 113267

The individual ear disorders were classified as acute otitis externa, mild otitis externa, chronic otitis externa, and infections other than otitis externa. The Pseudomonas organisms appeared to be the most important bacteriologic agent. The occurrence of Pseudomonas organisms in normal ears was 1 percent. AAF SAM Proj. 21-1401-0005, Report no. 10.

Further studies on the etiologic agents and their in vitro sensitivity reactions, by David E. Singer, Betty S. McNeil, James E. Lett, and Roland B. Mitchell. Nov 1953. 8p tables Microfilm $1.50, Photostat $1.50. PB 113325

Specimens from 145 cases of otitis externa were examined bacteriologically. The Pseudomonas organisms isolated from cases of otitis externa throughout the period of investigation varied considerably in their reactions to the different antibiotics and other therapeutic test agents. This was also noted for other organisms. Sensitivity studies appear to be indicated in assisting in the selection of proper therapeutic agents. AAF SAM Proj no. 21-1401-0005, Report no. 6.

XI: Preliminary studies on response of external ear infections to selected therapeutic agents, by Albert V. Hardy, J. J. Spencer, James F. Lett, and Roland B. Mitchell. Nov 1953. 4p table Microfilm $1.50, Photostat $1.50. PB 113268

On the basis of bacteriologic findings, the response of Pseudomonas infections to the therapeutic agents employed revealed that in 64 percent of the ears treated with terramycin otic solution there was a change from numerous Pseudomonas organisms in the primary cultures to none on cultures taken after treatment. Comparable percentages obtained with polymyxin B, sodium sulfadiazine, and sulfamylon were 55, 35, and 18 percent, respectively, with a marked reduction in Pseudomonas organisms. Preliminary results indicate that no single therapeutic agent used can be considered uniformly and highly satisfactory. AAF SAM Proj 21-1401-0005, Report no. 11.

Physiological effects of chronic exposure to carbon monoxide, by Syrrel S. Wilks, Joseph F. Tomashefski, and Robert T. Clark. U. S. Air Force. School of Aviation Medicine, Randolph Field, Texas. Nov 1953. 10p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113263

When dogs are chronically exposed to 0.08 to 0.10 percent carbon monoxide an increased tolerance is developed. The percentage of COHb in normal dogs, altitude-acclimatized dogs, CO-acclimatized dogs, and transfused dogs has similar values when the animals are in equilibrium with the gas mixture. AAF SAM Proj. 21-1201-0013, Report no. 2.

METALS AND METAL PRODUCTS

Aircraft material specification: 85-95 ton chromium-molybdenum-vanadium steel. (Suitable for nitrogen hardening, (Limiting ruling section 2½ in.) Gt. Brit. Ministry of Supply. May 1953. 2p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 112498

1. Steel, Chromium-molybdenum-vanadium - Specifications - Gt. Brit. 2. Nitrogen - Hardening - Specifications - Gt. Brit. 3. MS DTD MS 730.

Aneiasticity of molybdenum. Final report covering the period May 1, 1950, to Jul 14, 1953, and 16th quarterly report covering the period Mar 1, 1953, to Jul 14, 1953, under Contract no. N9onr 82100, by R. D. Maringer and A. D. Schwope. Battelle Memorial Institute, Columbus, Ohio. Jul 1953. 53p photos, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $7.75. PB 113445

Some factors which might affect the mechanical properties of molybdenum, including heat treatment, impurities and plastic deformation, were studied by means of internal-friction experiments in conjunction with chemical, spectrographic and vacuum-fusion analysis, and mechanical testing. Heat treating in atmospheres of oxygen, nitrogen, and hydrogen under vacuua and high temperatures caused numerous changes in the properties of molybdenum.

Calculations for reactions of chromium, molybdenum, titanium and tungsten with oxygen, nitrogen, hydrogen, carbon and sulfur, by J. J. Ward, J. Paul Ray, S. A. Herres. Rand Corporation, Santa, Monica, Calif. Jul 1948. 97p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.50, Photostat $12.75. PB 113262

R-108. Contract no. W33-038-ac-14105.
1. Chromium - Chemical reactions 2. Molybdenum - Chemical reactions 3. Titanium - Chemical reactions 4. Tungsten - Chemical reactions 5. Alloys, High temperature - Research.

Case study data on productivity and factory performance: Aluminum ware, by Robert T. Kinsley and George Hermanson. U. S. Bureau of Labor Statistics. Oct 1953. 67p photos, graph, tables Available from U. S. Bureau of Labor Statistics, Washington 25, D. C. PB 113451

1. Aluminum ware - Manufacture 2. BLS 48.

Development of magnesium waveguides and flanges. Model Engineering and Manufacturing, Inc., Huntington, Ind. Under Contract no. AF 33(038)-14347. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Report no. 1, period Jun 26 to Aug 31, 1950, by F. M. Guest. Aug 1950. 6p Microfilm $1.50, Photostat $1.50. PB 113291

Report no. WF-ER 1-1.
1. Magnesium - Welding 2. Wave guides, Magnesium.

Second interim report for the period Sep 1, 1950, to Jan 10, 1951, by F. M. Guest. Jan 1951. 68p photos, drawings (part fold) Microfilm $3.25, Photostat $9.00. PB 113292

Report no. WF-ER 1-2.
1. Magnesium - Welding 2. Wave guides, Magnesium - Design 3. Flanges, Magnesium - Design.

Third interim report for period Jan 11, 1951 to Feb 20, 1952, by F. M. Guest. Feb 1952. 28p photos, diagrs, table Microfilm $2.25, Photostat $4.00. PB 113293

Report no. WF-ER 1-3.
1. Magnesium - Welding 2. Wave guides, Magnesium - Bending 3. Flanges, Magnesium 4. Machines, Bending.

Final report, from Feb 20, 1952, to Mar 31, 1953, by F. M. Guest. Apr 1953. 56p photos, fold drawing, tables Microfilm $3.00, Photostat $7.75. PB 113294

1. Magnesium - Welding 2. Wave guides, Magnesium - Manufacture 3. Wave guides, Magnesium - Tests 4. Flanges, Magnesium.

Improvement of the ductility of molybdenum weldments. Summary report covering the period Aug 1, 1951 to Jul 14, 1953, and 16th quarterly report covering the period Mar 1, 1953, to Jul 14, 1953, under Contract N9onr- 82100, by W. H. Kearns, L. E. Olds, D. C. Martin, and R. B. Fischer. Battelle Memorial Institute, Columbus, Ohio. Jul 1953. 22p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113446

Ductile butt weldments were made with molybdenum rods previously degassed under high vacuua and in excess of 3500°F. Experimental data leading to these conclusions are presented. Molybdenum alloyed with strong deoxidizers or elements tending to form nitrides, carbides, or sulfides were prepared for future welding tests.

Literature survey on weld-metal cracking, by A. J. Williams, P. J. Rieppel, C. B. Voldrich. Battelle Memorial Institute, Columbus, Ohio. Aug 1952. 212p photo, drawings, diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $3.00. PB 111285

Contract no. AF 33(038)-12619. First of a series of reports on weld-metal cracking.
1. Metals - Welding 2. Welds - Cracking 3. Welds - Cracking - Bibliography 4. Steel welds - Cracking 5. Steel welds - Macrostructure 6. AAF WADC TR 52-143.

Process specification: Preparation of metals for protection against corrosion. Gt. Brit. Ministry of Supply. Jul 1953. 4p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.30. PB 112502

Superseding MS DTD MS 901B.
1. Metals - Corrosion prevention - Specifications - Gt. Brit. 2. MS DTD MS 901C.

Production of cermets by flash sintering process, by M. Hill, M. W. Taylor, G. S. Mikhalapov, E. G. Touceda of Metallurgical Research and Development Co., Inc., and C. L. Clark, W. V. Knopp, J. D. Shaw of S-K-C Research Associates. Metallurgical Research & Development Co., Washington, D. C. and S-K-C Research Associates, Patterson, N. J. Apr 1952. 69p photos, fold diagr, graphs, tables (part fold) Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $2.00. PB 111286

Report covering the period from 1 October 1950 through 31 March 1952 includes the historical background of the flash sintering process, a description of the equipment, and test results. The most favorable conditions of power input, time and pressure required to produce a nickel-titanium carbide compact of optimum physical characteristics was determined. Evaluation of sintered compacts was made by determination of density, hardness, modulus or rupture and optical analysis. Contract no. AF 33(038)-16032. AAF WADC TR 52-106.

Report on the recovery of critical and strategic metals from high alloy scrap, by Panel on High Alloy Scrap Utilization. National Research Council. Division of Engineering and Industrial Research. Minerals and Metals Advisory Board. Dec 1953. 30p fold diagr, tables (part fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113480

Contract DA-025-sc-83.
1. Scrap metal - Recovery processes 2. Alloys, High temperature - Recovery 3. MMAB 59-M 4. SIG Contract DA-025-sc-83.

Study of hard coating for aluminum alloys, by F. G. Gillig. Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y. May 1953. 121p photos, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $2.00. PB 111320

A study has been made of the effects of hard oxide coatings produced by the MHC process on the properties of five wrought and two cast aluminum alloys. Coating thicknesses ranging from 0.0005 inch to 0.005 inch were studied. Of the many properties that were studied, the abrasion resistance of the coatings and their effect on the fatigue strength of the parent metal are the most significant. Contract no. AF 18(600)-98. AAF WADC TR 53-151.

Tentative theory of metallic whisker growth. Technical report no. 8 under Contract Nonr 177-(00) NR 017-417, by J. D. Eshelby. Illinois. University. Dept. of Physics, Urbana, Ill. Jun 1953. 6p diagr Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113261

1. Metals - Tensile properties 2. Metals - Deformation - Theory 3. Metals - Surface properties.

Variation of the adiabatic elastic constants of aluminum with temperature, by T. R. Long and Charles S. Smith. Case Institute of Technology. Dept. of Physics, Cleveland, Ohio. Jul 1953. 21p drawing, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113449

The elastic constants of a single crystal of aluminum have been measured by the pulsed ultrasonic technique in the temperature range from 80° to 300°K. Contract N6onr-273, T. O. 3, NR 019-201. Technical report no. 12.

METEOROLOGY AND CLIMATOLOGY

Atmospheric pressure changes and solar activity, by Richard A. Craig and David Hawkins. Harvard University. High Altitude Observatory, Boulder, Colo. Mar 1951. 45p fold diagrs, fold graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113377

Special report no. 38 under Contract W19-122ac-17.
1. Atmosphere - Pressure 2. Solar phenomena
3. Solar flares - Meteorological effects.

Attenuation of light in the earth's atmosphere and related problems, by Diran Deirmendjian. California. University. Dept. of Meteorology, Los Angeles, Calif. Jul 1952. 38p diagr, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113251

Scientific report no. 1 under Contract no. AF 19(122)-239 (Investigation of polarization of sky light).
1. Light - Attenuation - Theory 2. Light - Polarization.

Bibliography of microseisms, edited by B. Gutenberg and F. Andrews. California Institute of Technology. Seismological Laboratory, Pasadena, Calif. Second edition, revised and enlarged. Sep 1952. 95p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.50, Photostat $12.75. PB 113233

Scientific report no. 1 under Contract AF 19(122)-436.
1. Microseisms - Bibliography.

Diffusion in the free atmosphere. Final report under Contract W28-099-ac-439, by James G. Edinger. California. University. Dept. of Meteorology, Los Angeles, Calif. Sep 1951. 78p photos, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.75, Photostat $10.25. PB 113254

Appendix 1 is Tabulation of observed data, Harpers Dry Lake, 9 A.M., 18 Aug 1949. - Appendix 2. Observational procedures and instrumentation.
1. Atmosphere - Diffusion 2. Atmosphere - Turbulence - Measurement 3. Balloons, Meteorological - Operation 4. Bubbles - Generation 5. Bubbles - Photography 6. Phototheodolites 7. Trajectories, Particle.

Dynamical theory for treating the motion of cold and warm fronts in the atmosphere, by J. J. Stoker. Dynamics of meteorological fronts, by G. B. Whitham. New York University. Institute for Mathematics and Mechanics. Jun 1953. 50p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113298

Contract N6ori-201, Task order no. 1.
1. Meteorology - Theory 2. Mathematical equations and solutions 3. NYU IMM 195.

Equatorial front, by C. E. Palmer. Feb 1949. 49p diagrs, graphs, map Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $6.50. PB 113410s

Supplement to Report no. 5 under Contract W28-099-ac-385. Text of two lectures given at the Central Meteorological Observatory, Tokyo, Japan, on the 5th and 12th Feb 1949.
1. Typhoons - Formation 2. Meteorological research

Heights of ionospheric winds as measured at long radio wavelengths, by R. E. Jones, G. H. Millman, R. J. Nertney. Pennsylvania State College. Ionosphere Research Laboratory, State College, Pa. Apr 1952. 35p diagrs, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 113226

The necessary theory for diffraction by a phase-amplitude screen is developed and the analogy to a time modulation system is shown. Several numerical examples are presented for sinusoidal phase-amplitude screens. Contract no. AF 19(122)-44, Scientific report no. 36. PSC IRL SR 36.

Impulsive generation of certain changes in the tropospheric circulation. Part I: The correlations, by C. E. Palmer. California. University. Institute of Geophysics. Jun 1952. 13p map, graphs (1 fold) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113235

Scientific report no. 1. Contract no. AF 19(122)-414.
1. Cyclones, Tropical - Effect of solar radiation
2. Atmosphere - Circulation - Troposphere
3. Troposphere - Research 4. Riehl diagram.

Investigation of the general circulation of the atmosphere, by V. P. Starr. Massachusetts Institute of Technology. Dept. of Meteorology. Aug 1949. 70p diagrs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $8.75. PB 113055

Final report under Contract no. W28-099-ac-406.
1. Atmosphere - Circulation 2. Atmosphere - Energy 3. Atmosphere - Angular momentum
4. Atmosphere - Angular momentum - Effect of mountains 5. Atmosphere - Hydrodynamics - Theory 6. Atmosphere - Thermodynamics - Theory
7. Vortex motion - Theory.

Investigation of the general circulation of the atmosphere. California. University. Dept. of Meteorology, Los Angeles, Calif. Under contract AF 19(122)-48. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Report no. 7, part I: Geostrophic poleward flux of angular momentum in the month of January 1949, by Yale Mintz. Mar 1951. 18p diagrs, graphs, tables Microfilm $2.00, Photostat $2.75. PB 113236

1. Atmosphere - Circulation 2. Velocity, Angular - Measurement 3. Momentum - Theory 4. Winds, Geostrophic - Measurements.

Progress report part III, report no. 8, by Yale Mintz. Jun 1951. 3p Microfilm $1.50, Photostat $1.50. PB 113421

1. Atmosphere - Circulation.

Part I, report no. 9. Daily geostrophic poleward flux of angular momentum and daily contour heights and sea-level pressures in January 1949, by Yale Mintz and Robert Pyle. Sep 1951. 32p graphs, tables Microfilm $2.50, Photostat $5.25. PB 113422

1. Atmosphere - Circulation 2. Winds, Geostrophic - Measurement 3. Atmosphere - Pressure - Measurement.

Part II, report no. 9: Contour-channel method of computing the geostrophic poleward flux of sensible heat, angular momentum, or other atmospheric properties, by Yale Mintz and Shih-Kung Kao. Sep 1951. 5p Microfilm $1.50, Photostat $1.50. PB 113423

1. Atmosphere - Circulation 2. Winds, Geostrophic - Theory.

Investigation of polarization of the sky light. Progress report no. 1 under Contract AF 19(122)-239, by Zdenek Sekera. California. University. Dept. of Meteorology, Los Angeles, Calif. Nov 1950. 13p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113424

1. Sky - Illumination - Theory 2. Light - Polarization - Measurement 3. Light - Scattering - Theory.

Mean diurnal variation of air-earth current density at selected stations in Southern California, by R. E. Holzer and G. F. Schilling. California. University. Institute of Geophysics. Mar 1952. 20p map, graphs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113241

Scientific report no. 1 under Contract no. AF 19(122)-254.
1. Electric conductivity - Measurements 2. Currents, Air - Measurements.

Micrometeorology of the surface layer of the atmosphere. Johns Hopkins University. Laboratory of Climatology, Seabrook, N. J. Under Contract no. W28-099-ac-378. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Interim report no. 5, Jan 1, 1949 to Mar 31, 1949, by C. W. Thornthwaite. Mar 1949. 55p photos, drawings, diagrs, graphs, tables Microfilm $3.00, Photostat $7.75. PB 113275

1. Micrometeorology 2. Instruments, Meteorological - Design 3. Evapotranspiration 4. Indicators, Dew-point 5. Dew-point - Measurements 6. Thermometers, Thermocouple.

Interim report no. 6, Apr 1, 1949 to Jun 30, 1949, by C. W. Thornthwaite. Jun 1949. 93p drawings, diagrs, graphs, tables Microfilm $4.50, Photostat $12.75. PB 113276

1. Micrometeorology 2. Evapotranspiration 3. Atmosphere - Temperature - Measurements 4. Dew-point - Measurement 5. Solar radiation - Measurement 6. Precipitation - Measurements.

Interim report no. 11, Jul 1, 1950 to Sep 30, 1950, by C. W. Thornthwaite. Sep 1950. 101p photo, drawings, maps, graphs, tables Microfilm $4.75, Photostat $14.00. PB 113277

1. Micrometeorology 2. Atmosphere - Temperature - Measurement 3. Dew-point - Measurements 4. Evapotranspiration 5. Hygrometers - Design 6. Pyrheliometers - Design.

Observation of the character of an electrical discharge in the upper atmosphere and microwave absorption in gases. Final report under Contract no. W-28-099-ac-188, submitted by Robert E. Holzer. California. University. Institute of Geophysics. Jul 1948. 16p diagrs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113247

1. Atmosphere, Upper - Electricity 2. Radio waves - Absorption - Measurement 3. Radio waves - Absorption - Measuring equipment.

Operation and evaluation of the beacon triangulation system and the ionosphere beacon system, by H. E. Harrington. Oklahoma Agricultural and Mechanical College. Research Foundation, Stillwater, Okla. n.d. 18p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113372

Final report under Contract no. W28-099ac-376.
1. Atmosphere, Upper - Research 2. Trajectory determination 3. Antennas, Helical 4. Computers, Trangulation 5. Ionosphere - Research.

Micrometeorology of the surface layer of the atmosphere. Johns Hopkins University. Laboratory of Climatology, Seabrook, N. J. Under Contract no. W28-099-ac-378. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Interim report no. 5, Jan 1, 1949 to Mar 31, 1949, by C. W. Thornthwaite. Mar 1949. 55p photos, drawings, diagrs, graphs, tables Microfilm $3.00, Photostat $7.75. PB 113275

1. Micrometeorology 2. Instruments, Meteorological - Design 3. Evapotranspiration 4. Indicators, Dew-point 5. Dew-point - Measurements 6. Thermometers, Thermocouple.

Interim report no. 6, Apr 1, 1949 to Jun 30, 1949, by C. W. Thornthwaite. Jun 1949. 93p drawings, diagrs, graphs, tables Microfilm $4.50, Photostat $12.75. PB 113276

1. Micrometeorology 2. Evapotranspiration 3. Atmosphere - Temperature - Measurements 4. Dew-point - Measurements 5. Solar radiation - Measurements 6. Precipitation - Measurements.

Interim report no. 11, Jul 1, 1950 to Sep 30, 1950, by C. W. Thornthwaite. Sep 1950. 101p photo, drawings, maps, graphs, tables Microfilm $4.75, Photostat $14.00. PB 113277

1. Micrometeorology 2. Atmosphere - Temperature - Measurement 3. Dew-point - Measurements 4. Evapotranspiration 5. Hygrometers - Design 6. Pyrheliometers - Design.

Ozonesonde development. New York University. College of Engineering Research Division. Project no. 140. Under Contract no. AF 19(122)-238. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 140.01, covering period from Mar 15, 1950 to Aug 15, 1950, by William D. Murray. Aug 1950. 19p diagrs, graphs Microfilm $2.00, Photostat $2.75. PB 113351

1. Ozone - Measurement 2. Atmosphere, Upper - Ozone - Measurement 3. Ozonesondes - Design.

Progress report no. 140.02, covering period from Mar 15, 1950 to Aug 15, 1950, by William D. Murray. Aug 1950. 19p diagrs, graphs Microfilm $2.00, Photostat $2.75. PB 113352

1. Ozone - Measurement 2. Ozonesondes - Design.

Progress report no. 140.03, covering period from Nov 15, 1950 to Feb 15, 1951, by William D. Murray. Mar 1951. 22p photo, diagrs, graphs Microfilm $2.25, Photostat $4.00. PB 113353

1. Solar radiation - Absorption - Theory 2. Ozonesondes - Design.

Physical interactions between tropical and temperature latitudes, by C. H. B. Priestley and A. J. Troup. Australia. Commonwealth Scientific and Industrial Research Organization. Section of Meteorological Physics. 1954. 21p graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113474

Technical paper no. 1. Continues work reported in Quart. J. R. Met. Soc. 77:200.
1. Latitude interactions - Australia 2. Eddy currents - Australia 3. Atmosphere - Angular momentum - Australia 4. Atmosphere - Interzonal balance - Australia 5. Atmosphere - Heat transference - Australia 6. Atmosphere - Moisture content - Australia.

Research on turbulence and diffusion of particulate matter in the lower layers of the atmosphere. Massachusetts Institute of Technology. Round Hill Field Station, South Dartmouth, Mass. Under Contract no. AF 28(099)-7. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Progress report no. 1, Nov 1, 1948-Jan 31, 1949, by Wendell Hewson. Feb 1949. 8p Microfilm $1.25, Photostat $1.25. PB 113197

1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Eddy currents 5. Particles - Diffusion.

Progress report no. 2, Feb 1, 1949-Apr 30, 1949, by E. Wendell Hewson. May 1949. 9p Microfilm $1.25, Photostat $1.25. PB 113198

1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Eddy currents 5. Particles - Diffusion 6. Air flow, Vertical - Measurements.

Progress report no. 3, May 1, 1949-Jul 31, 1949, by E. Wendell Hewson. Aug 1949. 21p photos Microfilm $2.00, Photostat $3.75. PB 113199

1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Eddy currents 5. Particles - Diffusion 6. Smoke - Flow patterns 7. Pyrheliometers - Design 8. Eppley pyreliometer.

Progress report no. 4, Aug 1, 1949-Oct 31, 1949, by E. Wendell Hewson. Nov 1949. 45p photos, drawing, graphs, tables Microfilm $2.50, Photostat $6.25. PB 113200

Contents: Apparatus and equipment, by Gerald C. Gill. - Details of progress in the various sub-projects. Sub-project 1: A study of the mechanism of diffusion of particulate matter as it is affected by diurnal variations of turbulent mixing, by W. Wendell Hewson. - Sub-project 2:

Study of the turbulent matter, by Harrison E. Cramer. - Sub-project 3: Study of the physical aspects of eddy motion in the lower layers of the atmosphere, by Frank A. Record.
1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Eddy currents 5. Eppley pyrheliometer 6. Particles - Diffusion.

Progress report no. 5, Nov 1, 1949-Jan 31, 1950, by E. Wendell Hewson. Feb 1950. 50p photos, drawings, graphs, tables Microfilm $2.50, Photostat $6.25. PB 113201

Contents: General instrumentation, by Gerald C. Gill. - Details of progress in the various subprojects: Sub-project 1: Study of the mechanism of diffusion of particulate matter as it is affected by diurnal variations of turbulent mixing, by E. Wendell Hewson. - Sub-project 2: Study of the turbulent motion of particulate matter, by Harrison E. Cramer. - Sub-project 3: Study of the physical aspects of eddy motion of the lower layers at the atmosphere, by Frank A. Record. - Sub-project 4: The development of instrumentation for the determination of eddy coefficients, by Gerald C. Gill.
1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Eddy currents 5. Particles - Diffusion 6. Smoke - Flow patterns.

Progress report no. 6, Feb 1-Apr 30, 1950, by E. Wendell Hewson. May 1950. 7p Microfilm $1.25, Photostat $1.25. PB 113202

Contents: General instrumentation, by Gerald C. Gill. - Details of progress in the various subprojects. Sub-project 1: Study of the mechanism of diffusion of particulate matter as it is affected by diurnal variations of turbulent mixing, by E. Wendell Hewson. - Sub-project 2: Study of the turbulent motion of particulate matter, by Harrison E. Cramer. - Sub-project 3: Study of the physical aspects of eddy motion in the lower layers of the atmosphere, by Frank A. Record. - Sub-project 4: Development of instrumentation of eddy coefficients, by Gerald C. Gill.
1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Eddy currents 5. Particles - Diffusion 6. Airflow, Vertical - Measurements.

Progress report no. 7, May 1-Jul 31, 1950, by E. Wendell Hewson. Aug 1950. 21p photos, diagrs, graphs Microfilm $2.00, Photostat $3.75. PB 113203

Contents: General instrumentation, by Gerald C. Gill. - Details of progress in the various subprojects. Sub-project 1: Study of the mechanism of diffusion of particulate matter as it is affected by diurnal variations of turbulent mixing, by E. Wendell Hewson. - Sub-project 2: Study of the turbulent motion of particulate matter, by Harrison E. Cramer. - Sub-project 3: Study of the physical aspects of eddy motion in the lower layers of the atmosphere, by Frank A. Record. - Sub-project 4: Development of instrumentation for the determination of eddy coefficients, by Gerald C. Gill.
1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Particles - Diffusion 4. Eddy currents 6. Anomalometers, Temperature - Design.

Progress report no. 8, Aug 1-Oct 31, 1950, by E. Wendell Hewson. Nov 1950. 50p photos, map, tables Microfilm $2.50, Photostat $6.25. PB 113204

Contents: General instrumentation, by Gerald C. Gill. - Details of progress in the various subprojects. Sub-project 1: A study of mechanism of diffusion as it is affected by diurnal variations of turbulent mixing, by E. Wendell Hewson. - Subproject 2: A study of the physical aspects of atmospheric diffusion, by Harrison E. Cramer. - Sub-project 3: Study of the physical aspects of eddy motion in the lower layers of the atmosphere, by Frank A. Record. - Sub-project 4: The development of instrumentation for the determination of eddy coefficients, by Gerald C. Gill.
1. Atmosphere - Turbulence - Meteorological aspects 2. Atmosphere - Diffusion 3. Atmosphere - Heat transference 4. Particles - Diffusion 5. Eddy currents 6. Anemometers - Design 7. Winds - Measuring equipment.

Progress report no. 9, Nov 1, 1950-Jan 31, 1951, by E. Wendell Hewson. Feb 1951. 49p photos, graphs, tables Microfilm $2.75, Photostat $6.50. PB 113231

1. Atmosphere - Turbulence 2. Atmosphere - Diffusion 3. Eddy currents 4. Winds - Measuring equipment.

Sierra wave project. California. University. Dept. of Meteorology, Los Angeles, Calif. Under Contract no. AF 19(122)-263. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Scientific report no. 1, by Paul Queney. Jul 1952. 112p diagrs, graphs Microfilm $5.00, Photostat $15.25. PB 113252

Contents: I. Use of conformal mapping for the perturbation theory of two-dimensional flows. - II. Harmonic waves (Rayleigh waves) in two-dimensional flows (General properties). - III. Harmonic waves (Rayleigh waves) in a system of constant-vorticity currents. - IV. Initial-value problems in a system of Couette-flows.
1. Flow, Two-dimensional - Theory 2. Mapping, Conformal 3. Rayleigh waves 4. Couette flow 5. Vortex motion - Theory.

Quarterly report no. 1, covering the period 1 Jul 1950 to 30 Sep 1950, by Jörgen Holmboe and James Edinger. Sep 1950. 2p Microfilm $1.50, Photostat $1.50. PB 113242

Quarterly report no. 2 covering the period 1 Oct 1950 to 31 Dec 1950, by Jörgen Holmboe and James Edinger. Dec 1950. 3p Microfilm $1.50, Photostat $1.50. PB 113243

Quarterly report no. 3 covering the period 1 Jan 1951 to 31 Mar 1951, by Jörgen Holmboe and James Edinger. Mar 1951. 2p Microfilm $1.50, Photostat $1.50. PB 113244

Quarterly report no. 4 covering the period 1 Apr 1951 to 30 Jun 1951, by Jörgen Holmboe and James Edinger. Jun 1951. 2p Microfilm $1.50, Photostat $1.50. PB 113245

Quarterly report no. 5 covering the period 1 Jun 1951 to 30 Sep 1951, by Jörgen Holmboe. Sep 1951. 75p map, graphs, tables Microfilm $3.75, Photostat $10.25. PB 113253

Appendix A. Fluid flow over a corrugated bed, by E. Höiland. - Appendix B. Numerical computation of the Sierra Wave from the solution of Lyra, by Joseph B. Knox.
1. Flow, Incompressible - Theory 2. Vortex motion - Theory 3. Winds - Velocities - Theory.

Quarterly report no. 6 covering the period 1 Sep 1951 to 31 Dec 1951, by Jörgen Holmboe and James Edinger. Dec 1951. 3p Microfilm $1.50, Photostat $1.50. PB 113246

Sodium in the upper atmosphere, by Lewis E. Miller. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate. Atmospheric Analysis Laboratory, Cambridge, Mass. Jun 1953. 105p photos, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.75, Photostat $14.00. PB 113444

A survey of the literature on the occurrence, vertical distribution and abundance of sodium in the upper atmosphere has been made. Abstracts are chronological as far as possible and annotated. A summary and evaluation is made of some of the salient and important topics on atmospheric sodium. AAF GRD SG 43. AAF CRC TR 53-47.

Solar chromosphere, by H. K. Sen and Lenore Schmidt. Harvard University. High Altitude Observatory, Boulder, Colo. May 1949. 70p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D.C. Microfilm $3.25, Photostat $9.00. PB 113363

Contract W19-122-ac-17.
1. Chromosphere - Research 2. Chromosphere - Temperature 3. Chromosphere - Theory 4. Chromosphere - Turbulence.

Some measurements of the variation of electrical space charge near the ground, by S. Ruttenberg, R. Dickinson, G. F. Schilling and R. E. Holzer. California. University. Dept. of Meteorology, Los Angeles Calif. Mar 1952. 14p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113250

Scientific report no. 2 under Contract no. AF 19(122)-254.
1. Atmosphere - Electricity.

Some measurements related to upper atmosphere phenomena. Final report under Contract no. W19-122ac-19, by Robert E. Holzer, Lee Tepley, Phillip Goldberg. California. University. Institute of Geophysics. Jan 1953. 55p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $3.00, Photostat $7.75. PB 113427

Contents: Chapter I. Attempts to observe the character and intensity of the light from an electrical discharge in the high atmosphere, by R. E. Holzer. - Chapter II. Mass spectrometer for ionic measurements in the ionosphere, by Lee Tepley and R. E. Holzer. - Chapter III. Measurement of low frequency magnetic noise, by P. A. Goldberg.
1. Atmosphere, Upper - Electricity 2. Discharges, Electric - Light - Measurement 3. Discharges, Electric - Photographic analysis 4. Mass spectrometers - Design 5. Noise, Magnetic - Measurement.

Studies in atmospheric electricity. California. University. Institute of Geophysics. Under Contract no. AF 19(122)-254. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Quarterly report no. 2 covering period Oct 15, 1950 to Dec 15, 1950, by Robert E. Holzer. Dec 1950. 21p graphs, tables Microfilm $2.25, Photostat $4.00. PB 113425

1. Atmosphere - Electricity - Measurement 2. Atmosphere - Electricity - Measuring equipment 3. Atmosphere - Resistance.

Quarterly report no. 3 covering period Dec 15, 1950 to Mar 15, 1951, by Robert E. Holzer. Mar 1951. 17p photo, diagr, graphs, tables Microfilm $2.00, Photostat $2.75. PB 113426

Section B is Study of the distribution of conduction currents in the vicinity of thunderstorms, by R. E. Holzer and David S. Saxon of the Institute for Numerical Analysis, National Bureau of Standards.
1. Atmosphere - Electricity 2. Potentiometers, Recording - Design 3. Thunderstorms - Electrical properties 4. Currents, Electric - Theory

Study of Doppler and damping effects in the solar atmosphere, by Barbara Bell. Harvard University. Harvard College Observatory, Cambridge, Mass. Jan 1951. 275p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $9.25, Photostat $35.25. PB 113380

Special report no. 35 under AMC Contract W19-122-ac-17 for the establishment of a solar observatory at Sacramento Peak, New Mexico.
1. Doppler effect 2. Atmosphere, Solar - Damping effects 3. Solar phenomena 4. HU HCO SR 35.

Sudden ionospheric disturbances without solar flares, by William N. Fleming, Dorothy E. Trotter, and Walter Orr Roberts. Harvard University. High Altitude Observatory, Boulder, Colo. Aug 1950. 6p table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113368

Contract W19-122-ac-17, Special report no. 32.
1. Ionosphere - Research 2. Ionosphere - Turbulence.

Suggested program for a study of the possible relationship between solar variability and weather changes, by Richard A. Craig. Harvard University. High Altitude Observatory, Boulder, Colo. Jan 1949. 37p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113232

Contract W19-122-ac-17, Special report.
1. Solar energy - Research 2. Weather - Effect of solar variations.

Summary of North Pacific weather station bathythermograph data, 1943-1952, by Dale F. Leipper and Project Staff. Texas. Agricultural and Mechanical College. Dept. of Oceanography, College Station, Texas. Jan 1954. 50p graphs, tables Available from the Agricultural and Mechanical College of Texas, College Station, Texas. PB 113270

Contract N7 onr-487, T. O. 3, Project NR 083-061. Technical report no. 7. Texas A. and M. Research Foundation, Project 29.
1. California. University. Scripps Institution of Oceanography 2. Bathythermographs 3. Ocean temperature - Measurements.

Temperatures at the 10-MB (101,000-foot) level. U. S. Air Force. Air-Weather Service, Andrews Air Force Base, Washington, D. C. May 1953. 35p maps, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113343

1. Atmosphere, Upper - Temperature - Measurement 2. Isotherms 3. AAF AWS TR 105-108.

Upper level winds project, 13th report. Quarterly report covering the period May 12 to Aug 11, 1951, by Jörgen Holmboe. California. University. Dept. of Meteorology, Los Angeles, Calif. Aug 1951. 157p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $6.25, Photostat $20.25. PB 113249

Appendix A. Report on unstable upper waves, by J. Bjerknes. - Appendix B. Forecasting of wind using relative trajectories, by Zdenek Sekera and Joseph B. Knox. - Appendix C. On the stability of zonal motions, by Jörgen Holmboe. - Appendix D. Report on work at U.C.L.A. Dept. of Meteorology through the period Jan 29 to Apr 3, 1951 under Contract W28-099-ac-403, by Ragnar Fjörtoft.
1. Atmosphere, Upper - Dynamics - Theory 2. Atmosphere, Upper - Turbulence - Dynamics 3. Winds, Geostrophic - Measurement 4. Winds - Forecasting 5. Trajectories, Particle - Mathematical analysis.

Vertical distribution of water vapor in the stratosphere and upper atmosphere, by Lewis E. Miller. U. S. Air Force. Air Research and Development Command. Cambridge Research Center. Geophysics Research Directorate, Cambridge, Mass. Sep 1953. 117p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $15.25. PB 113300

1. Water vapor - Measurement 2. Atmosphere, Upper - Water vapor content 3. Stratosphere - Water vapor content 4. AAF GRD SG 45 5. AAF CRC TR 53-31.

Water vapor transport project. Johns Hopkins University. Dept. of Civil Engineering, Baltimore, Md. Under Contract no. AF 19(122)-365. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Quarterly report no. 2, Dec 15, 1950 to Mar 15, 1951, and Technical report no. 1. Mar 1951. 45p map, diagr, graphs, tables Microfilm $2.75, Photostat $6.50. PB 113271

Part II is Technical report no. 1: Water balance of the Ohio River basin for 1949 by Robert T. Carnahan and George S. Benton.
1. Winds, Geostrophic - Measurement 2. Evapotranspiration - Theory 3. Water vapor - Transference 4. Atmosphere - Moisture content.

Quarterly report no. 3, Mar 15, 1951 to June 15, 1951. Jun 1951. 9p Microfilm $1.50, Photostat $1.50. PB 113257

For reports no. 2, 4-6 see PB 113271-113272.
1. Water vapor - Transference 2. Winds, Geostrophic - Measurement 3. Punched card system.

Quarterly reports no. 4 & 5, June 15, 1951 to Dec 15, 1951 and Technical reports no. 2 & 3. Dec 1951. 74p maps, graphs, tables Microfilm $3.75, Photostat $10.25. PB 113272

Part II is Technical report no. 2: Space-time distribution of atmospheric eddies, by George S. Benton and Noel E. LaSeur. Part III is Water vapor transport over the North American continent during March, 1949, by George S. Benton.

1. Water vapor - Transference 2. Winds, Geostrophic - Measurement 3. Eddy currents.

Quarterly report no. 6, Dec 15, 1951 to Mar 15, 1952. Mar 1952. 6p Microfilm $1.50, Photostat $1.50. PB 113273

For reports no. 2-5 see PB 113257, 113271-113272.
1. Water vapor - Transference 2. Winds, Geostrophic - Measurement.

MINERALS AND MINERAL PRODUCTS

Pozzolanic properties of several Oregon pumicites, by C. O. Heath, Jr. and N. R. Brandenburg. Oregon. Engineering Experiment Station, Corvallis, Oregon. Sep 1953. 35p photo, graphs, tables Available from Engineering Experiment Station, Oregon State College, Corvallis, Oregon. $.50. PB 113323

1. Pumice - Uses 2. Pumice - Properties 3. O EES B34.

Radiometric assay of uranium and thorium ores, an A.E.R.E. report, by E. Franklin and R. K. Barnes. Gt. Brit. Ministry of Supply. Atomic Energy Research Establishment. 1953. 57p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.90. PB 113322

Revised version of A.E.R.E. G/R 244, 1947. HD. 1016. S. O. code no. 70-674-1-58.
1. Uranium - Ores - Assay - Gt. Brit. 2. Uranium - Ores - Radioactivity - Gt. Brit. 3. Thorium ores - Assay - Gt. Brit. 4. Thorium ores - Radioactivity - Gt. Brit. 5. Atomic power - Research - Gt. Brit. 6. AERE EL/R 1175 7. AERE G/R 244 Revised.

Über die entmischung von grobzerkleinertem quarz (On the disintegration of coarsely ground quartz), by Folke Sandford and Stig Fransson. Chalmers University of Technology, Gothenburg, Sweden. 1953. 24p diagrs, graphs (Text in German) Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113454

Institutionen för Silikatkemisk Forskning 31.
1. Quartz - Disintegration - Sweden 2. Chalmers University of Technology, Gothenburg, Sweden. Transactions no. 133.

ORDNANCE AND ACCESSORIES

Operation and evaluation of the beacon triangulation system and the ionosphere beacon system. Oklahoma Agricultural and Mechanical College. Research Foundation. Under Contract no. W28-099-ac-376. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Report no. 14 for the period 1 Aug-30 Oct 1950, by H. E. Harrington. Nov 1950. 18p graphs (part fold), tables Microfilm $2.00, Photostat $2.75. PB 113411

1. Triangulation 2. Ballistics, Rocket - Exterior - Measurements 3. Trajectory determination.

Report no. 15 for the period 1 Nov 1950-31 Jan 1951, by H. E. Harrington. Feb 1951. 11p fold graphs, tables Microfilm $2.00, Photostat $2.75. PB 113412

1. Ballistics, Rocket - Exterior - Measurement 2. Trajectory determination 3. Triangulation.

Report no. 16 for the period 1 Feb 1951-30 Apr 1951, by H. E. Harrington. May 1951. 15p fold graphs, tables Microfilm $2.00, Photostat $2.75. PB 113413

1. Ballistics, Rocket - Exterior - Measurement 2. Trajectory determination 3. Triangulation.

Report no. 17 for the period 1 May 1951-31 Jul 1951, by H. E. Harrington. Aug 1951. 19p fold graphs, tables Microfilm $2.00, Photostat $2.75. PB 113414

1. Ballistics, Rocket - Exterior - Measurement 2. Trajectory determination 3. Triangulation.

PAPER AND ALLIED PRODUCTS

Electrical properties of glass fiber paper. II, by Thomas D. Callinan and Robert T. Lucas. U. S. Naval Research Laboratory. Oct 1952. 27p graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.75. PB 111310

An effort has been made to encourage industrial investigation and exploitation of superfine fibers for use in filter papers, dielectric papers, and nonflammable products. As a result of these efforts, the market for these fibers has been developed to the point where they may be obtained in quantity; in addition, there has been a marked reduction in price, accompanied by a substantial improvement in the mechanical properties. A factor contributing to this improvement has been the development of microfibers having a Fiber Number of the order of 14. The addition of fillers such as bentonite clay results in papers two or three times stronger than all-glass-fiber papers, while the use of binders and saturants results in even greater mechanical strengths. For part I see NRL report 4019 (PB 111030). NRL R 4042.

PERSONNEL APTITUDE TESTING

Group correlation methods, by Dorothy E. Green. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. Nov 1952. 11p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113166

1. Psychological tests - Rating scales 2. Correlation functions 3. AAF HRRL MR27.

Handbook on officer evaluation: A manual for reporting and indorsing officers on the procedure for preparing and reviewing the officer personnel report, by Harley O. Preston. American Institute for Research, Inc., Pittsburgh, Pa. Jun 1951. 104p drawings Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $4.50, Photostat $13.75. PB 113192

Contract AF 33(038)-9448.
1. Personnel - Records 2. Personnel - Selection 3. Performance tests 4. Psychiatric tests 5. Ability tests - Evaluation 6. Tests, Officer qualification 7. Officer performance record - Evaluation 8. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C.

Jointly-sponsored programs of college-credit work for employed adults, by Alice Yeomans Scates. American Council on Education. Research Staff on Scientific Personnel. Jul 1953. 240p tables Available free from American Council on Education, 1785 Massachusetts Ave., N. W., Washington, D. C. PB 113378

Report of a project sponsored by the Office of Naval Research.
1. Education, Adult 2. Education, College-credit.

Practical performance test batteries for electrician's mates and radiomen, developed in conjunction with "A manual for use in the preparation and administration of practical performance tests," by Robert R. Mackie, Clark L. Wilson, Donald N. Buckner, Wells D. De Loach, William F. Dossett, Eugene B. Ross. Management and Marketing Research Corporation, Los Angeles, Calif. Jun 1953. 120p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $15.25. PB 113468

1. Performance tests 2. Electricians - Performance - Tests 3. Personnel, Radio - Performance - Tests.

Training effectiveness of a tank hull trainer, by Victor H. Denenberg. George Washington University. Human Resources Research Office, Washington, D. C. Feb 1954. 36p photos, diagr, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113463

1. Tanks (Combat) - Drives - Training equipment 2. 3-T-3 (Tank hull trainer) 3. GWU HRRO TR 3.

Value of using multiple examples in training film instruction, by F. F. Kopstein. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. May 1952. 31p photos, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $5.00. PB 113163

Factors influencing the effectiveness of audio-visual training material, no. 2.
1. Training films 2. Motion pictures, Education 3. Psychological tests 4. AAF HRRL R25.

PHOTOGRAPHIC AND OPTICAL GOODS

Report on the results of photographic seeing measurements, by Bruno Witte and Shirley Friel. Harvard University. Harvard College Observatory, Cambridge, Mass. Mar 1951. 36p diagrs, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113364

An objective photographic method of measuring the astronomical "seeing" has been introduced, aimed to provide us with quantitative results. The former visual, and therefore subjective and qualitative, method has been compared with it. Contract W19-122-ac-17, Special report no. 37. Covers observation periods from Mar 1948 to Aug 1950.

Study of sky clarity and seeing conditions at night on Sacramento Peak. Harvard University. High Altitude Observatory, Boulder, Colo. Under Contract W19-122-ac-17. Order separate parts described below from Library of Congress, Publication Board Project, Washington 25, D. C., giving PB number of each part ordered.

Special report no. 22, by Rudolph H. Cook, Harry E. Ramsey, and Le Roy Davis. Mar 1950. 16p graphs, tables Microfilm $2.00, Photostat $2.75. PB 113366

1. Visibility - Measurement - Photographic methods 2. Recorders, Star.

Special report no. 39. Supplement, by Bruno Witte, with the assistance of Rudolph H. Cook,

Richard T. Hansen, Richard D. Huston, and Harry E. Ramsey. Apr 1951. 16p graph, tables Microfilm $2.00, Photostat $2.75. PB 113381

1. Visibility - Measurement - Photographic methods 2. Recorders, Star 3. HU HCO SR 39.

PHYSICS

General

Application of the similarity theory on radiation in furnaces, by C. H. Yhland. Chalmers University of Technology, Gothenburg, Sweden. 1953. 31p diagrs, graph, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $5.25. PB 113456

Avd. Maskinteknik 7.
1. Furnaces - Heat transference - Sweden 2. Heat - Transference - Theory - Sweden 3. Similarity - Theory - Sweden 4. Chalmers University of Technology, Gothenburg, Sweden. Transactions no. 135.

Attenuation of sound in the atmosphere. Summary report under Contract W28-099-ac-228, by L. R. Delsasso. California. University. Dept. of Physics, Los Angeles, Calif. Jun 1950. 29p photos, diagrs, graphs, table Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113430

Continues Contract W33-038-ac-15473. Appendix A is Equipment and field operations.
1. Sound - Attenuation - Measurements 2. Sound - Attenuation - Measuring equipment.

Biassed random walks in classical, statistical and quantum mechanics, by Gilbert W. King. Little, Arthur D., Inc., Cambridge, Mass. Jul 1951. 24p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 112520

C-57848. Technical report no. 5. Contract N6-onr-228, T. O. II, Project NR 033,243.
1. Diffusion - Theory 2. Random distribution - Theory 3. Equations, Differential 2. Quantum mechanics.

Diamond pyramidal hardness testing of spherical specimens with special reference to the calculation of indentation area, by J. A. Macinante and N. J. C. Peres. Australia. Commonwealth Scientific and Industrial Research Organization. Division of Meteorology. 1953. 10p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113476

Technical paper no. 1.

1. Hardness tests - Australia 2. Spheres - Indentations - Mathematical analysis - Australia.

Distortion of a crystal by point imperfections, by J. D. Eshelby. Illinois. University. Dept. of Physics. Jul 1953. 27p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.25, Photostat $4.00. PB 113442

Technical report no. 9 under Contract Nonr 177-(00), NR017-417.
1. Crystals - Lattices - Distortion 2. Elasticity - Theory.

Incompressible flow past a sinusoidal wall of finite amplitude, by Carl Kaplan. U. S. National Advisory Committee for Aeronautics. Feb 1954. 26p diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113313

Plane incompressible flow past an infinitely long sinusoidal wall of any amplitude is considered in the present paper. It was found that this problem could not be treated in the physical plane but had to be transferred to the plane of velocity potential and stream function. NACA TN 3069.

On the superposed epoch method of correlation, by David Hawkins. Harvard University. High Altitude Observatory, Boulder, Colo. Aug 1950. 11p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $2.75. PB 113367

Contract W19-122-ac-17, Special report no. 30.
1. Correlation (Statistics).

Nuclear

Radiochemical study of fission yields in the region of shell perturbations and the effect of closed shells in fission, by Alexis C. Pappas. Massachusetts Institute of Technology. Laboratory of Nuclear Science. Sep 1953. 205p drawing, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $7.75, Photostat $26.50. PB 113469

A radiochemical determination of fission yields and a study of the fine structure in the heavy mass peak in fission of U^{235} with thermal neutrons is presented. A survey of the status of the knowledge of the fission process is given in Part I together with the information of the problems that will be investigated. Part II deals with a detailed study of the techniques and radiochemical methods used. A thorough investigation of the fission product decay chains in the mass range of 129 to 140 is reported in Part III. Part IV concerns studies of the effects of closed shells in fission. Contract no. At(30-1) 905. Work was started Sep 1949 under Contract N5ori-07806. MIT LNS TR 63.

Report on Atomic Power Symposium held at Chalk River, Ontario, 9th, 10th, and 11th of September 1953. Atomic Energy of Canada, Ltd., Chalk River, Ontario, Canada. 1953. 203p drawings, diagrs, graphs, tables Available from Atomic Energy of Canada, Ltd., Chalk River, Ontario, Canada. $2.00. PB 113348

CRR-548-A. Contents: I. Neutron physics considerations in reactor design, by G. C. Laurence. - II. Engineering problems of reactor design, by I. N. Mac Kay. - III. Rod reactors, by I. N. Mac Kay. - IV. Heterogeneous reactors, by S. A. Kushneriuk. - V. Operational considerations when producing power from a nuclear reactor, by G. W. Hatfield. - VI. Radiation hazard considerations, by G. W. C. Tait. - VII. Reactor control, by F. W. Gilbert. - VIII. Disposal or uses of large quantities of fission products, by A. M. Aiken. - IX. Materials, by J. C. Horsman. - X. Gas cooling of power reactors, by J. B. Haddow. - XI. Liquid metal cooling, by H. E. Tilbe. - XII. Benzene as a working fluid in a low operating temperature turbine, by C. E. Benyon. - XIII. Steam electric generating stations, by H. S. Dennis. - XIV. Power systems planning for Ontario, by G. D. Floyd. - XV. Power resources of Canada, their potential and utilization, by H. Massue.
1. Atomic power - Research - Canada 2. Reactors, Neutron - Coolants - Canada 3. Reactors, Neutron - Design - Canada 4. Fission products - Uses - Canada 5. Generators, Electric - Canada 6. Electric power - Canada 7. Electric systems - Canada 8. AECL-82.

Study of fission-yield fine structure, a summary of the Ph. D. thesis, Dept. of Chemistry and Laboratory for Nuclear Science, Massachusetts Institute of Technology, by Donald R. Wiles. Nov 1953. 5p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.50, Photostat $1.50. PB 113470

1. Atomic power - Research 2. Fission - Effect of closed shells 3. Fission products - Fine structure.

PRINTING, PUBLISHING

Comparison of United States - United Kingdom and International Civil Aviation Organization phonetic alphabets. Part I, under Contract no. AF 18(600)-316, by Henry M. Moser and John J. Dreher. Ohio State University Research Foundation, Columbus, Ohio. Jul 1953. 15p tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113185

1. Alphabets, Phonetic - Comparison 2. AAF HFORL R 38.

Comparison of US-UK and ICAO phonetic alphabets. Interim report. U. S. Air Force. Air Research and Development Command. Human Factors Operations Research Laboratories, Bolling Air Force Base, Washington, D. C. Dec 1952. 19p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113178

1. Alphabets, Phonetic 2. Phonemes 3. Speech - Intelligibility 4. AAF HFORL MR33.

PSYCHOLOGY

Psychology and ground safety. Institute for Research in Human Relations, Philadelphia, Pa. Aug 1953. 146p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $6.00, Photostat $19.00. PB 113334

Contract AF 18(600)-301. Contents: I. Introduction, by Douglas Courtney. - II. Psychological research on the problem of accident causation, by Douglas Courtney and Arthur I. Siegel. - III. Safety promotion procedures, by Harold E. Burtt. - IV. Principles of driver training, by Amos E. Neyhart. - V. Principles and procedures of driver evaluation, by A. R. Lauer. - VI. Practical principles for effective interviewing, by George J. Dudycha. - VII. Human relations and safety, by Norman R. F. Maier. - VIII. Supplemental bibliography.
1. Psychology, Applied 2. Safety education 3. Interviewing 4. Motor vehicles - Accidents 5. Motor vehicles - Drivers 6. Motor vehicles - Drivers - Training 7. AAF HFORL R43.

STRUCTURAL ENGINEERING

Approximate solution of the compressible laminar boundary layer on a flat plate, by R. J. Monaghan. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Nov 1949. 24p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.50. PB 113288

Cover date is 1953. S. O. code no. 23-2760.
1. Boundary layer, Laminar - Compressibility - Gt. Brit. 2. Plates, Flat - Compression tests - Gt. Brit. 3. Fluids, Compressible - Flow - Gt. Brit. 4. Enthalpy - Theory - Gt. Brit. 5. ARC RM 2760.

Elastic stability of sandwich plates, by J. H. Hunter-Tod. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Mar 1949. 39p diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $2.40. PB 113289

Cover date is 1953. S. O. code no. 23-2778.
1. Plates, Sandwich - Elastic constants - Gt. Brit. 2. Sandwich construction - Tests - Gt. Brit. 3. ARC RM 2778.

TEXTILES AND TEXTILE PRODUCTS

Aircraft material specification: Cotton webbing. Gt. Brit. Ministry of Supply. Jul 1953. 1p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 112503

1. Webbing, Cotton - Specifications - Gt. Brit. 2. MS DTD MS 871.

Aircraft material specification: Heavy union webbing. Gt. Brit. Ministry of Supply. Jul 1953. 2p table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 112501

1. Webbing, Heavy - Specifications - Gt. Brit. 2. MS DTD MS 835.

Aircraft material specification: Heavy webbing. Gt. Brit. Ministry of Supply. Jul 1953. 1p table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 112500

1. Webbing, Heavy - Specifications - Gt. Brit. 2. MS DTD MS 834.

Aircraft material specification: Nylon webbing. Gt. Brit. Ministry of Supply. Jul 1953. 2p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15. PB 112499

1. Webbing, Nylon - Specifications - Gt. Brit. 2. MS DTD MS 829.

Modification of the physical properties of hard fibers through chemical treatment, by Chapin A. Harris and George Thomson. Fabric Research Laboratories, Inc., Boston, Mass. Jan 1952. 43p photos, drawing, graphs, tables Microfilm $2.75, Photostat $6.50. PB 113309

Contract N7onr-421, Task order I. Technical report no. 5.
1. Abaca - Physical properties 2. Abaca - Tensile properties 3. Fibers, Vegetable - Chemical treatments 4. J-1 (Fiber).

Study of the effect of temperature on textile materials, by Myron J. Coplan. Fabric Research Laboratories, Inc., Boston, Mass. Mar 1953. 181p diagrs, graphs, tables Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $2.00. PB 111240

The main objective of this investigation was to evaluate the fibers at temperatures from -70°F. to the extremely high temperatures, at which the fibers fail to function efficiently. Such properties of the yarns as average breaking tenacity, average breaking elongation, average yield tenacity, average yield elongation, average initial modulus, average loop tenacity and efficiencies, energy absorbed to several stress levels, and heat shrinkage were obtained at various temperatures and after exposure for specific lengths of time at each temperature. Detailed data are given in both tabular and graphic form, as well as a discussion covering the mechanical behavior of fibers. Contract no. AF 33(038)-22932. AAF WADC TR 53-21.

TRANSPORTATION EQUIPMENT

Aeronautics

Aircraft

Comparison of model and full-scale spin recoveries obtained by use of rockets, by Sanger M. Burk, Jr. and Frederick M. Healy. U. S. National Advisory Committee for Aeronautics. Feb 1954. 63p photos, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113312

1. Airplanes - Spinning - Wind tunnel tests 2. Airplanes - Spinning - Recovery 3. Rocket motors - Combustion 4. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 5. NACA TN 3068.

Effects of wing position and fuselage size on the low-speed static and rolling stability characteristics of a delta wing model, by Alex Goodman and David F. Thomas, Jr. U. S. National Advisory Committee for Aeronautics. Feb 1954. 66p photos, drawings, diagr, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113258

1. Tail surfaces - Loads 2. Tail surfaces - Interference 3. Wings, Triangular - Interference 4. Bodies of revolution - Fineness ratio 5. Damping derivatives - Stability 6. Stability, Longitudinal - Static tests 7. Stability, Lateral - Static tests 8. Stability, Directional - Static tests 9. Damping derivatives - Stability 10. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 11. NACA TN 3063.

Flight investigation of the practical problems associated with porous-leading-edge suction, by Paul A. Hunter and Harold I. Johnson. U. S. National Advisory Committee for Aeronautics. Feb 1954. 42p photos, drawings, diagrs, graphs, tables Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113087

1. Wings - Boundary layer - Control 2. Wings - Boundary layer - Suction effect 3. Boundary layer - Suction effect 4. Wing flaps - Leading edges

5. Wing flaps - Suction 6. Airfoils - Boundary layer - Effect 7. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 8. NACA TN 3062.

Low-speed measurement of the pressure distribution at the surface of a swept-back wing, by V. M. Falkner and Doris E. Lehrian. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Nov 1949. 36p photo, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 113287

Cover date is 1953. S. O. code no. 23-2741.
1. Wings, Sweptback - Drag - Gt. Brit. 2. Wings, Sweptback - Loading - Calculations - Gt. Brit. 3. Wings, Sweptback - Pressure distribution - Gt. Brit. 4. Wings, Sweptback - Velocity distribution - Gt. Brit. 5. ARC RM 2741.

The 9 x 3 in. induced-flow high-speed wind tunnel at the National Physical Laboratory, by D. W. Holder and R. J. North. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jun 1949. 25p photos, drawings (2 fold), graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.80. PB 113290

Cover date is 1953. S. O. code no. 23-2781.
1. Wind tunnels, High speed - Induction systems - Gt. Brit. 2. ARC RM 2781.

Observations on a thin cambered aerofoil beyond the critical Mach number, by E.W.E. Rogers. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Jul 1950. 16p photos, diagrs, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 113284

Cover date is 1953. S. O. code no. 23-2432.
1. Airfoils, Cambered - Surface pressure - Gt. Brit. 2. Airfoils, Cambered - Wake - Gt. Brit. 3. Airfoils, Cambered - Velocity distribution - Gt. Brit. 4. Airfoils, Cambered - Drag - Gt. Brit. 5. Mach number - Effect 6. ARC RM 2432.

Prediction of dynamic landing loads, by M. Goland, Y. L. Luke, E. A. Kahn. Midwest Research Institute, Kansas City, Mo. Jan 1949. 115p diagrs, graphs (part fold), tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $5.00, Photostat $15.25. PB 113342

It is the purpose of the report to present a design method which permits the convenient calculation of the structural responses arising from the landing impact. Contract no. W33-038-ac-19079. AAF TR 5815.

Relationship between aircraft maintenance and flying safety. Phase I: A criterion of maintenance adequacy. Management and Marketing Research Corporation, Los Angeles, Calif. Feb 1953. 60p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.75, Photostat $7.50. PB 113176

1. Aircraft - Maintenance and repair 2. Maintenance quality control 3. Safety devices and measures 4. AAF HFORL MR32.

Simple mechanical analogue for studying the dynamic stability of aircraft having nonlinear moment characteristics, by Thomas N. Canning. U. S. National Advisory Committee for Aeronautics. Feb 1954. 17p diagrs, graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113315

1. Stability, Dynamic - Theory 2. Pitching moment - Calculation 3. Yawing moment - Calculation 4. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. 5. NACA TN 3125.

Studies in the productivity of aircraft maintenance crews. I: Prospectus of a program of research, by Hans H. Strupp and Solomon C. Goldberg. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. Nov 1952. 25p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.00, Photostat $3.75. PB 113172

1. Mechanics, Aeronautical 2. Aircraft - Maintenance and repair 3. AAF HRRL MR30.

Tests on the Hurricane L.1696 in the 24-ft wind tunnel, by D. W. Bottle and T. V. Somerville. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Aug 1941. 10p photo, drawings, diagrs, graph, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.75. PB 112467

Cover date is 1953. S. O. code no. 23-2562.
1. Airplanes - Wind tunnel tests - Gt. Brit. 2. Hurricane L. 1696 (Airplane) - Gt. Brit. 3. ARC RM 2562.

Theoretical calculations of the effects of finite sideslip at supersonic speeds on the span loading and rolling moment for families of thin sweptback tapered wings at an angle of attack, by Windsor L. Sherman and Kenneth Margolis. U. S. National Advisory Committee for Aeronautics. Nov 1953. 53p diagrs, graphs, table Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 112589

1. Flow, Supersonic 2. Wings, Sweptback - Span load distribution - Calculation 3. Wings, Sweptback - Rolling moments - Calculation 4. Airplanes - Sideslip 5. Mach number - Effect 6. U. S. Langley Aeronautical Laboratory, Langley Field, Virginia 7. NACA TN 3046.

Two-dimensional aerofoil design in compressible flow, by L. C. Woods. Gt. Brit. Ministry of Supply.

Aeronautical Research Council. Nov 1949. 19p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.40. PB 113286

Cover date is 1953. S. O. code no. 23-2731.
1. Airfoils, Two dimensional - Design - Gt. Brit. 2. Airfoils, Two dimensional - Velocity - Gt. Brit. 3. Mach number - Effect - Gt. Brit. 4. Flow, Compressible - Mach number effect - Gt. Brit. 5. ARC RM 2731.

Instruments

Flight investigation at large angles of attack of the static-pressure errors of a service pitot-static tube having a modified orifice configuration, by William Gracey and Elwood F. Scheithauer. U. S. National Advisory Committee for Aeronautics. Feb 1954. 25p photos, drawings, graphs Available from National Advisory Committee for Aeronautics, 1724 "F" St., N. W., Washington 25, D. C. PB 113113

1. Flying, Instrument 2. Angle of attack - Effect on pressure 3. Pitot-static tubes - Calibration 4. Mach number - Effect 5. Pitot-static tubes - Orifices - Design 6. Reynolds number - Effect 7. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 8. NACA TN 3159.

GCA operation at Tempelhof and Tegel Air Force bases, by William H. Sumby. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. Oct 1949. 16p drawing, diagrs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113139

1. Radar, Ground controlled approach 2. AAF HRRL R8.

Investigation of the proficiency of ground controlled approach final controllers (Study no. 2: Photo-theodolitic and allied records), by David Holt. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. Nov 1949. 17p diagr, graph, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113140

For study no. 1 see AAF HRRL R2 (PB 113130).
1. Radar, Ground controlled approach 2. Photo-theodolites 3. Airports - Control towers - Operators 4. AAF HRRL R9.

Summary of B-50 simulator research conference (21 Dec 1951). U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. 1951. 9p Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.25, Photostat $1.25. PB 113154

1. B-50 (Simulator) 2. Simulators, Flight 3. AAF HRRL MR18.

Engines and Propellers

Multiple-jet white-smoke generators, by C. Salter. Gt. Brit. Ministry of Supply. Aeronautical Research Council. Mar 1950. 18p photos, drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.25. PB 113285

Cover date is 1953. S. O. code no. 23-2657.
1. Generators, Smoke - Jet propelled - Gt. Brit. 2. Paraffins - Vaporization - Gt. Brit. 3. ARC RM 2657.

Type test of a Curtiss no. C542S-A propeller with no. 714-4C2-12 blades for use on a P-47D airplane powered with an R-2800-21 engine, by A. E. Shaw. U. S. Air Force. Air Technical Service Command. Oct 1945. 14p photos, graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113069

Whirl test no. 1840.
1. Propellers - Tests 2. C542 S-A (Propeller) 3. P-47D (Airplane) 4. AAF TR 5316.

Training and Training Devices

AGCT and ACE testing of SAC officers, by R. F. Dice. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. Mar 1949. 20p graphs, tables Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $1.75, Photostat $2.50. PB 113134

1. Psychological tests 2. Personnel, Flying - Tests 3. Army General Classification Test 4. American Council on Education Psychological Examination 5. AAF HRRL R4.

Report to writers of aircraft familiarization films: Specific effects of the film "Flight capabilities of the F86A" as related to points covered in the film (A second report on the experimental evaluation of Air Force training film no. 1-4692, Pt. III), by John V. Zuckerman and Milton Jacobs. U. S. Air Force. Human Resources Research Laboratories, Bolling Air Force Base, Washington, D. C. Jun 1951. 44p diagrs Available from Library of Congress, Publication Board Project, Washington 25, D. C. Microfilm $2.50, Photostat $6.25. PB 113141

1. Motion pictures, Educational 2. Training films - Evaluation 3. F86A (Airplane) 4. AAF HRRL MR10.

ATOMIC ENERGY COMMISSION PUBLICATIONS

The publications listed below are available from the Office of Technical Services, Washington 25, D. C., at the prices indicated. PREPAYMENT IS REQUIRED. List titles desired on Order Blank (A). Check or money order accompanying the order should be made payable to the Treasurer of the United States.

AECD-3460 "Test of 1200-GPM Linear A-C Electromagnetic Pump," by John Barnard and G. D. Collins. May 23, 1951. 34p. $.45.

AECD-3501 "The Electromagnetic Concentration of the Stable Isotopes of Mercury," by L. O. Love and W. E. Leyshon. August 23, 1951. 45p. $.45.

AECD-3502 "The Electromagnetic Concentration of Samarium," by L. O. Love and W. A. Bell. October 4, 1950. 29p. $.25.

AECU-2755 "Engineering Development Problems in Atomic Power Plants", by G. S. Mikhalapov, K. A. Kesselring and T. Trocki. 1953. 15p. $.20.

AECU-2765 "Scattering Theory and its Applications," by Kenneth M. Watson and Keith A. Brueckner. 1953. 100p. $.70.

HW-29021 "Experimental Thermal Conductivities of Gases and Gaseous Mixtures at Zero Degrees Centigrade," by J. M. Davidson and J. F. Music. July 3, 1953. 30p. $.25.

ISC-116 "Distribution of Thorium Nitrate Between Water and a Mixture of Butyl Phosphate and Butyl Ether," by Marion R. Anderson. July 1, 1950. 18p. $.25.

LRL-62 "Thermoelectric Calibration of Zirconium-Constantan and Zirconium-Alumel Thermocouples," by C. J. Shoens and J. W. Shortall. December 1953. 17p. $.20.

NSF-tr-127 "On the Theory of Pair Production during a Collision of Heavy Particles," by L. B. Okun. 3p. Translated from Doklady Akademii Nauk SSSR, 89, 833-35 (1953). $.10.

NSF-tr-137 "Motion of Fast Electrons in a Magnetic Field," by A. A. Sokolov and I. M. Ternov. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 537-40 (1953). $.10.

NSF-tr-168 "On the Theory of the Fine Structure of the X-Ray Absorption Spectra of Ions in Solutions," by E. Ye. Vainshtein. 4p. Translated from Doklady Akademii Nauk SSSR, 91, 1059-62 (1953). $.10.

NSF-tr-172 "Properties of the Superconducting Modification of Bismuth," by N. V. Zavaritsky. 4p. Translated from Doklady Akademii Nauk SSSR, 91, 787-90 (1953). $.10.

NSF-tr-173 "Kinetics of Luminescence of Silver Halide Salts," by V. A. Arkhangelskaya and P. P. Feofilov. 4p. Translated from Doklady Akademii Nauk SSSR, 91, 1055-58 (1953). $.10.

NSF-tr-175 "The Magnitude of the Optical Anisotropy of the Benzene and Carbon Disulfide Molecules as Determined by Light Scattering in Solutions," by M. F. Vuks and V. I. Yelfimov. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 29-32 (1953). $.10.

NSF-tr-176 "Resistance of Metals to Plastic Deformation," by Yu. I. Yagn and I. A. Chaplinsky. 4p. Translated from Doklady Akademii Nauk SSSR, 90, 1023-26 (1953). $.10.

NSF-tr-179 "On the Theory of Ion Currents to Probes at Low Pressures", by Yu. M. Kagan and V. I. Perel. 4p. Translated from Doklady Akademii Nauk SSSR, 91, 1321-24 (1953). $.10.

NSF-tr-184 "Determination of the Number of Slow π - and μ-Mesons in Cosmic Rays at Various Altitudes," by Kh. P. Babayan, I. I. Zinger, and N. A. Marutyan. 2p. Translated from Doklady Akademii Nauk SSSR, 92, 263-64 (1953). $.10.

NSF-tr-194 "Dispersion of Sound Velocity in Certain Organic Liquids," by L. L. Fabelinsky and O. A. Shustin. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 285-88 (1953). $.10.

NSF-tr-196 "Wear Resistance of Carbon Steel Subjected to Rubbing in Certain Liquid Media after Diffusion Chromizing," by M. M. Khrushchov, M. A. Babichev, and G. N. Dubinin. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 303-306 (1953). $.10.

NSF-tr-208 "Polarization of the Luminescence of F-Centers in Crystals of Alkali Halides," by P. P. Feofilov. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 743-46 (1953). $.10.

NSF-tr-209 "Flow of a Visco-Plastic Dispersion System in a Conical Diffuser," by N. V. Tyabin and M. A. Pudovkin. 5p. Translated from Doklady Akademii Nauk SSSR, 92, 53-56 (1953). $.10.

NSF-tr-210 "Electron-Cascade Processes at Very High Energies," by Academician L. Landau and I. Pomeranchuk. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 735-38 (1953). $.10.

NSF-tr-211 "A Solution of the Integral Equation of a Linear Antenna," by L. D. Bakhrakh. 4p. Translated from Doklady Akademii Nauk, SSSR, 92, 755-58 (1953). $.10.

NSF-tr-212 "On the Possible Development of the Theory of Dislocations," by V. I. Arkharov, G. N. Kolesnikov, and A. N. Orlov. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 751-54 (1953). $.10.

NSF-tr-213 "Theory of Thermogradient Drying of Films," by Corresponding Member of the USSR Academy of Science B. V. Deryagin, I. N. Goufman, A. G. Amelin, and S. M. Levi. 5p. Translated from Doklady Akademii Nauk SSSR, 92, 759-62 (1953). $.10.

NSF-tr-214 "Observation of the Stopping of Heavy Mesons," by Corresponding Member of the USSR Academy of Science A. Alikhanyan, V. Kirillov-Ugryumov, N. Shostakovich, V. Fedorov, and G. Merzon. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 915-17 (1953). $.10.

NSF-tr-215 "Spectrophotometric Methods for Determining the Intensity, Form, and Width of Infrared Absorption Bands of Liquids," by A. V. Iogansen. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 919-22 (1953). $.10.

NSF-tr-217 "On the Choice of the "Unperturbed" Energy Operator in the Theory of the Interaction of a Nucleon with the Pseudoscalar Meson Field," by Yu. V. Novozhilov. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 931-33 (1953). $.10.

NSF-tr-218 "Interaction of Gravitation with a Particle Vacuum," by D. Ivanenko and A. Brodsky. 5p. Translated from Doklady Akademii Nauk SSSR, 92, 731-34 (1953). $.10.

NSF-tr-219 "Capture of $\bar{}$-Mesons by Deuterons," by A. Rudik. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 739-42 (1953). $.10.

NSF-tr-220 "On the Formulation of Rules for the Filling of Electron Levels," by V. M. Klechkovsky. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 923-26 (1953). $.10.

NSF-tr-221 "Intercrystalline Films in Single Crystals of Alkali Halide Salts and Some of Their Properties," by L. M. Shamovsky and L. M. Rodionova. 4p. Translated from Doklady Akademii Nauk SSSR, 92, 939-42 (1953). $.10.

NSF-tr-223 "Effect of Silicon on the Rate of Diffusion of Carbon in Austenite," by M. A. Krishtal. 3p. Translated from Doklady Akademii Nauk SSSR, 92, 951-53 (1953). $.10.

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SELECTED SUBJECTS OF INTEREST TO INDUSTRY

All AEC reports abstracted in Nuclear Science Abstracts have been reviewed and evaluated in terms of their interest and usefulness to general industry. These reports are listed below by title, author, and report number under one or more of the following nine broad categories: Chemistry and Chemical Engineering; Construction and Civil Engineering; Electronics and Electrical Engineering; Health and Safety; Industrial Management; Mechanics and Mechanical Engineering; Metallurgy and Ceramics; Mining and Geology; and Nuclear Technology.

All unclassified reports considered to be of special interest to general industry issued by the AEC prior to July, 1953 are listed or abstracted in a series of bibliographies (TID-3050), the titles of which correspond to the above-mentioned categories. These bibliographies may be purchased from the U. S. Department of Commerce, Office of Technical Services, Washington 25, D. C.

Reproduction in whole or part of any report listed herein is encouraged by the United States Atomic Energy Commission, subject to the approval of authors or originating sites. General inquiries from the industrial press about AEC-developed information may be directed to the Industrial Information Branch, AEC, Washington 25, D. C.

CHEMISTRY AND CHEMICAL ENGINEERING

AECD-3606
Oak Ridge National Lab.
MODIFICATIONS OF THE DIMETHYLGLYOXIME METHOD FOR THE COLORIMETRIC DETERMINATION OF NICKEL BASED ON THE USE OF POTASSIUM PERSULFATE AS THE OXIDANT. M. L. Druschel, O. Menis, and R. Rowan, Jr. Nov 3, 1952. Decl. with deletions Nov. 23, 1953. 42p. Contract W-7405-eng-26. (AECD-3606; ORNL-1430)

AECD-3607
Oak Ridge National Lab.
DETERMINATION OF COPPER, COBALT, AND NICKEL IN URANYL SOLUTIONS. J. M. Chilton. /Oct. 1953/. Decl. Dec. 29, 1953. 4p. Contract /W-7405-eng-36/ (AECD-3607)

AECU-2729
Stanford Research Inst.
SELECTED LIST OF REFERENCES REVIEWED DURING THE STUDY OF COUNTERCURRENT ION EXCHANGE. TECHNICAL REPORT NO. 8. Nevin K. Hiester and Russell C. Phillips. June 29, 1953. 20p. Contract AT(11-1)-110, Report no. 33. (AECU-2729)

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ENGINEERING AND ECONOMIC EVALUATION OF COUNTERCURRENT AND FIXED BED ION EXCHANGE PROCESSES. TECHNICAL REPORT NO. 7. Nevin K. Hiester, Raymond K. Cohen, and Russell C. Phillips. June 26, 1953. 51p. Contract AT(11-1)-110, Report No. 32. (AECU-2739)

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AECU-2776
Knolls Atomic Power Lab.
THE PRECISION DETERMINATION OF LOW CONCENTRATIONS OF CARBON IN METALS. Leonard P. Pepkowitz and William D. Moak. /Dec. 1953/ 14p. Contract W-51-109-Eng-52. (AECU-2776)

AECU-2777
Los Alamos Scientific Lab.
INFRARED ABSORPTION STUDIES OF AQUEOUS COMPLEX IONS: PART 1. CYANIDE COMPLEXES OF Ag(I) AND Au(I) IN AQUEOUS SOLUTION AND ADSORBED ON ANION RESIN. Llewellyn H. Jones and Robert A. Penneman. /1953/ 20p. Contract W-7405-eng-36. (AECU-2777)

ANL-DCS-6
Argonne National Lab.
RECOVERY OF HEAVY ELEMENTS FROM SEA WATER. PART 2. A NEW METHOD OF URANIUM ANALYSIS. D. C. Stewart and W. C. Bentley. Nov 1953. Decl. Jan. 11, 1954. 26p. Contract W-31-109-eng-38. (ANL-DCS-6)

COO-196
Engineering Research Inst., Univ. of Mich.
UTILIZATION OF THE GROSS FISSION PRODUCTS. PROGRESS REPORT NO. 5. L. E. Brownell, L. C. Anderson, H. J. Gomberg, L. L. Kempe, J. J. Martin, W. W. Meinke, J. V. Nehemias, R. B. Morrison, L. Thomassen, G. J. Van Wylen, E. T. Vincent, and R. A. Wolfe. Sept 1953. 202p. Contract AT(11-1)-162. (COO-196)

HW 29021
Hanford Works
EXPERIMENTAL THERMAL CONDUCTIVITIES OF GASES AND GASEOUS MIXTURES AT ZERO DEGREES CENTIGRADE. J. M. Davidson and J. F. Music. July 3, 1953. 30p. Contract W-31-109-eng-52. (HW-29021)

HW-29576

Hanford Works
SANDBLAST DECONTAMINATION OF STAINLESS STEEL. L. E. Kattner. Oct. 7, 1953. 17p. Contract W-31-109-Eng-52. (HW-29576)

KAPL-974

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KAPL-989

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TEMPERATURE DISTRIBUTION IN THE WALLS OF A SLOT AS THE LEVEL OF A LIQUID IS RAPIDLY RAISED IN THE SLOT. D. P. Timo. Sept. 15, 1953. 40p. Contract W-31-109-Eng-52. (KAPL-989)

KAPL-1016

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THE EQUILIBRIUM CONSTANT, INFRARED SPECTRUM, AND THERMODYNAMIC PROPERTIES OF BROMINE CHLORIDE. H. C. Mattraw, C. F. Pachucki, and N. J. Hawkins. Dec. 1, 1953. 14p. Contract W-31-109-Eng-52. (KAPL-1016)

LRL-65

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THE QUALITATIVE ANIONIC BEHAVIOR OF A NUMBER OF METALS WITH AN ION EXCHANGE RESIN, "DOWEX 2." H. G. Hicks, R. S. Gilbert, P. C. Stevenson, and W. H. Hutchin. Issued Dec. 1953. 10p. Contract AT(11-1)-74. (LRL-65)

MTA-35

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CALCULATION OF STAGEWISE CONTACTING SYSTEMS. J. L. Bloom and P. L. Auer. May 22, 1953. 45p. (MTA-35)

NAA-SR-253

North American Aviation, Inc.
CIRCULATION OF LEAD-BISMUTH EUTECTIC AT INTERMEDIATE TEMPERATURES. R. Cygan. Issued Oct. 1, 1953. 22p. Contract AT(11-1)-GEN-8. (NAA-SR-253)

NYO-6154

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THE HEAT CAPACITY OF CADMIUM BETWEEN 12°K AND 320°K AND THE ENTROPY OF CADMIUM AT 25°C. PROGRESS REPORT FOR JULY 1, 1953-OCTOBER 1, 1953. C. A. Krier, R. S. Craig, and W. E. Wallace. Oct. 5, 1953. 10p. Contract AT(30-1)-647. (NYO-6154)

NYO-6388

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HEAT OF ADSORPTION OF ARGON ADSORBED ON TITANIUM DIOXIDE BETWEEN 60 AND 90°K. E. L. Pace and S. A. Greene. Issued Dec. 31, 1953. 13p. Contract AT(30-1)-824. (NYO-6388)

ORNL-1332

Oak Ridge National Lab.
THE DENSITY OF URANYL SULFATE SOLUTIONS AND THE DETERMINATION OF URANIUM CONCENTRATION BY DENSITY MEASUREMENTS. J. E. Lee, Jr., R. Rowan, Jr., C. D. Susano, and O. Menis. June 18, 1952. Decl. Jan. 11, 1954. 25p. Contract W-7405-eng-26. (ORNL-1332)

ORNL-1578

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THE CHEMISTRY OF URANIUM(VI) ORTHOPHOSPHATE SOLUTIONS. PART 2. THE SOLUBILITY OF URANIUM(VI) ORTHOPHOSPHATES IN PHOSPHORIC ACID SOLUTIONS. J. M. Schreyer and C. F. Baes, Jr. June 30, 1953. Decl. Nov. 16, 1953. 38p. Contract W-7405-eng-26. (ORNL-1578)

ORNL-1579

Oak Ridge National Lab.
THE CHEMISTRY OF URANIUM(VI) ORTHOPHOSPHATE SOLUTIONS. PART 3. THE SOLUBILITY BEHAVIOR OF $UO_2HPO_4 \cdot 4H_2O$ IN PERCHLORIC ACID SOLUTIONS. C. F. Baes, Jr. and J. M. Schreyer. July 1, 1953. Decl. Nov. 16, 1953. 52p. Contract W-7405-eng-26. (ORNL-1579)

ORNL-1604

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ORNL-1628

Oak Ridge National Lab., Y-12 Area
FRACTIONAL SEPARATION OF RARE EARTHS BY PRECIPITATION WITH MANDELIC ACID. Boyd Weaver. Issued Dec. 4, 1953. 15p. Contract W-7405-eng-26. (ORNL-1628)

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Oak Ridge National Lab.
DETERMINATION OF PHOSPHATE IN PERCHLORIC AND SULFURIC ACID SOLUTIONS OF URANIUM PHOSPHATES. ION EXCHANGE SEPARATION AND AMPEROMETRIC DETERMINATION. E. C. Cogbill,

ORNL-1644 (Cont'd)

J. C. White, and C. D. Susano. Oct. 30, 1953. Decl. Jan. 11, 1954. 20p. Contract W-7405-eng-26. (ORNL-1644)

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Oak Ridge National Lab.
ENTHALPIES AND SPECIFIC HEATS OF ALKALI AND ALKALINE EARTH HYDROXIDES. W. D. Powers and G. C. Blalock. Issued Jan. 20, 1954. 48p. Contract W-7405-eng-26. (ORNL-1653)

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UCRL-2334
Radiation Lab., Univ. of Calif., Berkeley
THE DISTRIBUTION OF C^{14} IN THE CARBON ATOMS OF PHOTOSYNTHETICALLY-PRODUCED RIBULOSE (thesis). Anne Grace Zweifler. Sept. 1953. 48p. Contract W-7405-eng-48. (UCRL-2334)

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Radiation Lab., Univ. of Calif., Berkeley
THERMAL CONDUCTIVITY OF GASES AT HIGH TEMPERATURES (thesis). Albert Joel Rothman. Jan 1954. 115p. Contract W-7405-eng-48. (UCRL-2339)

UCRL-2394
Radiation Lab., Univ. of Calif., Berkeley
PREPARATION OF DIETHYL MALONATE-2-C^{14}. Doris Chin and Patricia Adams. Nov 1953. 12p. Contract W-7405-eng-48. (UCRL-2394)

UR-288
Atomic Energy Project, Univ. of Rochester
THE SEPARATION AND IDENTIFICATION OF MIXTURES OF C_{21} AND C_{19} STEROIDS BY PAPER CHROMATOGRAPHY. Leonard K. Axelrod. Oct. 29, 1953. 26p. Contract W-7401-eng-49. (UR-288)

ELECTRONICS

ANL-5181
Argonne National Lab.
PROCEEDINGS OF A SYMPOSIUM ON LARGE SCALE DIGITAL COMPUTING MACHINERY, AUGUST 3-5, 1953. 317p. (ANL-5181)

MTA-37
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AN AUTOMATIC COUNT AND CONTROL SYSTEM FOR A BETA-RAY SPECTROMETER. J. L. Olsen and G. D. O'Kelley. Issued Sept. 1953. 20p. Contract AT(11-1)-74. (MTA-37)

NAA-SR-120
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NYO-3579
New York Operations Office, AEC
NON-DESTRUCTIVE TESTING BY IMPEDANCE ANALYSIS. Richard Hochschild. June 5, 1953. 76p. (NYO-3579)

ORNL-1648
Oak Ridge National Lab.
THE DIFFUSION BATTERY METHOD FOR AEROSOL PARTICLE SIZE DETERMINATION. Jess W. Thomas. Issued Jan. 5, 1954. 68p. Contract W-7405-eng-26. (ORNL-1648)

TID-3050, Pt. 4
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A NEW DESIGN OF FILTER HOLDER FOR DUST SAMPLING. K. E. Lauterbach. Oct 15, 1953. 7p. Contract W-7401-eng-49. (UR-286)

MINING AND GEOLOGY

TID-3050, Pts. 6 and 7
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AECU-2775
Los Alamos Scientific Lab.
THE METABOLISM OF C^{14} LABELED ETHYLENEDIAMINETETRAACETIC ACID IN HUMAN BEINGS. Harry Foreman and Theodore T. Trujillo. (1953). 13p. Contract W-7405-eng-36. (AECU-2775)

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UR-252
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A COMPARATIVE STUDY OF THE INHIBITORY ACTIONS OF MERCURY AND URANIUM ON YEAST AND YEAST HEXOKINASE. Leon Hurwitz. Oct. 22, 1953. 100p. Contract W-7401-eng-49. (UR-252)

UR-253
Atomic Energy Project, Univ. of Rochester
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UR-283
Atomic Energy Project, Univ. of Rochester
STUDIES ON FLASH BURNS: THE INFLUENCE OF WAVE LENGTH ON THE PRODUCTION OF CUTANEOUS BURNS. Kelly M. Berkley and Thomas P. Davis. Sept. 30, 1953. 25p. Contract W-7401-eng-49. (UR-283)

UR-286
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UR-287
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General Engineering Lab., General Electric Co.
COLLISION OF PLATES. H. Poritsky and M. F. Bolster. Nov. 1, 1953. 31p. Contract W-31-109-eng-52. (GEL-77; R53GL226).

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ORNL-1598
Oak Ridge National Lab.
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AECD-3602
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THE THORIUM-VANADIUM SYSTEM. H. L. Levingston and B. A. Rogers. Apr. 22, 1953. Decl. with deletions Nov. 16, 1953. 20p. Contract W-7405-eng-82. (AECD-3602; ISC-340)

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Ames Lab.
THORIUM-TITANIUM ALLOY SYSTEM. H. A. Wilhelm, O. N. Carlson, and H. E. Lunt. June 1953. Decl. with deletions Dec. 2, 1953. 22p. Contract W-7405-eng-82. (AECD 3603; ISC-408)

BMI-843
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THE PERFORMANCE OF WATER-LUBRICATED SLEEVE BEARINGS. R. W. Dayton, C. M. Allen, and H. A. VanDyke. June 19, 1953. 42p. Contract W-7405-eng-92. (BMI-843)

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PREPARATION OF VANADIUM METAL. John R. Long and Harley A. Wilhelm. Aug 1951. 62p. Contract W-7405-eng-82. (ISC-244)

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SOME STUDIES ON THE DIFFUSION OF SODIUM IN SODIUM TUNGSTEN BRONZE. John F. Smith, G. C. Danielson, and H. A. Wilhelm. Mar. 1953. 51p. Contract W-7405-eng-82. (ISC-341)

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ALUMINUM-VANADIUM SYSTEM. D. J. Kenney, H. A. Wilhelm, and O. N. Carlson. June 1953. 81p. Contract W-7405-eng-82. (ISC-353)

ISC-403
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THE MEASUREMENT OF THERMAL CONDUCTIVITY OF REFRACTORY MATERIALS. THERMAL CONDUCTIVITY. PART 8. A THEORY OF THERMAL CONDUCTIVITY OF POROUS MATERIALS. Arthur L. Loeb. 16p. PART 9. EXPERIMENTAL INVESTIGATION OF THE EFFECT OF POROSITY ON THERMAL CONDUCTIVITY. J. Francl and W. D. Kingery. 18p. PART 10. DATA FOR SEVERAL PURE OXIDE MATERIALS CORRECTED TO ZERO POROSITY. W. D. Kingery, J. Francl, R. L. Coble, and T. Vasilos. 8p. F. H. Norton, director. Sep. 30, 1953. 62p. Contract AT(30-1)-960. (NYO-3647)

NYO-3648
Massachusetts Inst. of Tech.
THE MEASUREMENT OF THERMAL CONDUCTIVITY OF REFRACTORY MATERIALS. PROGRESS REPORT. F. H. Norton, W. D. Kingery, et al. Oct. 1, 1953. 9p. Contract AT(30-1)-960. (NYO-3648)

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NUCLEAR TECHNOLOGY

TID-3050, Pt. 3
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UCRL-2307
Radiation Lab., Univ. of Calif., Berkeley
ELASTIC AND INELASTIC SCATTERING OF 90-MEV NEUTRONS BY DEUTERONS (thesis). Byron L. Youtz. Aug. 13, 1953. 64p. Contract W-7405-eng-48. (UCRL-2307)